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EXCAVATIONS AT THE OLD TOWN VILLAGE SITE, CORNER OF DUKE AND HENRY STREETS, ALEXANDRIA, VIRGINIA: AN HISTORIC AND ARCHEOLOGICAL TREK THROUGH THE 200 YEAR HISTORY OF THE ORIGINAL SPRING GARDEN DEVELOPMENT

by

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August 1999

Report prepared for Eakin and Youngentob, Alexandria, Virginia

VOLUME III

APPENDIX VI
Beer, Liquor, Ink, Medicinal, and Culinary Bottles, Canning Jars, Telegraph Insulators and Perfumers: The Jars and Bottles from the Old Town Village Site, Alexandria, Virginia

by

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Introduction

A number of interesting embossed glass bottles were recovered from the Old Town Village site during Phase I and II archaeological data recovery in 1996 and 1997. These intact bottles, and bottle sherds, form a modest collection of identifiable local bottles and locally imported wares from the northeastern United States from the 1850s through the early 1900s. The discussion of the Old Town Village bottle collection from inventory notes is a general history of the bottle, including dates of manufacture and distribution when known from U. S. Patent Office records and Alexandria City Directories, and is not intended as a comprehensive history. Dates cited are dates of manufacture.

Embossing implies raised letters on the bottle that identify the brand name and/or the distributor of the contents. Embossing of bottles by a method known as "blown pattern molds" was commonly being widely used by 1750 in Europe. A pattern mold is a small mold into which a parison of molten glass is inserted to obtain the pattern. The glass parison is then removed from the mold and expanded by free-blowing the glass object without additional assistance. Patterns of a blown pattern mold are present on both the interior and exterior of the object and were used in the United States until the 1850s (Hurst 1990:6).

About 1810, full size bottle molds that formed the bottle from the base to the shoulders came into general use. Contact molds were improved on until replaced by new technologies in the glass houses of the United States in about 1880. These bottles are known as "contact molds" and have an orange-peel surface appearance. Beginning in the Civil War period, new technologies in the chemical composition of glass, changes in glass molds, and the beginning use of gas furnaces, advanced glass blowing techniques. In the 1870s, bottles began appearing with smooth surfaces known as "chilled iron mold" bottles. After 1874, air vents are also present on most chilled iron mold bottles. Chilled iron mold bottles were blown in the United States until 1930 (Hurst 1990:6-9). Production of machine-made bottles began in the early 1900s. The first commercially produced machine-made bottles were beer and soda bottles in amber and aqua glass first marketed in 1907/08. After 1910, clear glass and other small mouth bottles began appearing. A monopoly was held on the Automatic Bottle Machines until 1918 and machine-made bottles and jars were produced only by a limited number of licensed glass houses until that date (Scoville 1948:105-108).

In 1880, an Act of the Virginia Assembly, known as the "Bottle Act" required all persons and corporations within the state of Virginia engaged in manufacturing, bottling and selling any items that were bottled, boxed, or kegged to mark their bottles &c. with a brand name. These brand names were required to be registered annually with the clerk's office of each county, or with the clerk's office of the chancery court in the city of Richmond. This act was amended several times between 1889 and 1900 (Commonwealth of Virginia 1880:240, 1900:1242-1246). The trademark records for Alexandria County were not located in the county clerks office in Alexandria and are presumed "lost." Within the county of Alexandria, an Act of the Virginia Assembly in 1894, required the board of supervisors of Alexandria County to tax the sale of ardent spirits and malt liquors (Commonwealth of Virginia 1894:886-887). These special tax records, if located, may provide further useful information on the local distillers and distributors, and the history of consumption of liquor and beer prior to the Volstead Act , commonly known as prohibition, which took effect in Virginia in 1916.

Liquor Bottles

Remains of two cylinder embossed liquor bottle bases; one from the ELLENVILLE GLASS WORKS of New York, and the other from the WHITNEY GLASS WORKS of New Jersey, were recovered from the privy (Feature 142) of the Old Town Village site.

The Ellenville Glass Works bottle, blown in green black-glass into a contact mold, was recovered from level 4 of the privy. Following an English introduction of base embossed bottles blown into three-section molds in the 1820s, American glass houses began embossing bottle bases in the early 1830s. The Ellenville Glass Works of Wasing, New York (1816-1836) was relocated in 1836 to Ellenville, New York. Ellenville Glass Works later became the Ellen Glass Factory in 1866, dating the bottle as manufactured, probably from the early 1830s until 1867.

Remains of the Whitney Glass Works liquor bottle from Level 7 of the privy were blown in amber glass into a three-section contact mold having an inside screw threads for a threaded stopper. The amber glass stopper to the Whitney Glass Works bottle was recovered from Level 8 of the privy and is embossed PAT/JAN/1861. This bottle closure was patented in the U. S Patent Office by Samuel Whitney of the Whitney Glass Works on 1 January 1861. Whitney Glass Works was in business in Glassboro, New Jersey from 1842 until the works became Whitney Brothers in 1882 (Hurst 1990:10, B).

A number of unembossed plain amber liquor flasks with reinforced bands on the sides are represented in the Old Town Village collection. These plain flasks were introduced, probably during the Civil War, or shortly thereafter. One intact pint amber flask with an applied double collar lip finish was recovered from the top deposits of the privy (Feature 142). Perhaps typical of the pre- and post-Civil War period flasks is an intact citron oval pint sized flask, without reinforcing bands, from Level 6 of the privy. This flask also has an applied double collar lip finish however sides of the flask are not reinforced. Plain flasks of this period were often colorfully labeled with patriotic symbols of the American Eagle, the American flag, or regimental flags if the bottle was filled by a local distiller /distributor supporting his home town troops.

Remains of two pint size post-Civil War flasks were recovered from Levels 3, and Levels 7-8 of the privy feature. The flasks are oval in shape, and are embossed: SUCCESS TO THE UNION over a symbol of clasped hands signifying post-war unity. A number of Success to the Union flasks were blown by various glasshouses until about 1870 having variations on the reverse side of the flask. Sherds of the Success to the Union Flask from Level 3 are in clear glass with dots (instead of stars) around a shield. The second Success to the Union flask from Levels 7 and 8 was blown in aqua glass with stars around a shield and has an applied band below a sheared lip finish.

One historical-type pint sized aqua flask from Level 5 of the privy is embossed BALTIMORE over an Anchor with GLASS WORKS inside a banner appearing near the heel of the bottle. A representation of a Phoenix Bird over the word RESURGAM ("we shall rise again") appears on the reverse. It is doubtful that the phrase "Resurgam" would have been used during, or following the Civil War. Resurgam may refer to the fire that leveled the Baltimore Glass Works during the 1850s. Generally, historic-type flasks date from about 1820, and were most often used as pocket containers for hard cider and liquor. Baltimore Glass Works of Baltimore, Maryland was in operation from 1799 until about 1905.

Bitters

Hard liquor concoctions known as "bitters" were initially compounded and sold in England as a "medicinal" to avoid liquor taxes. There were two types of bitters bottles manufactured in the United States: those bottled in large whiskey type bottles usually in dark colored glass or fanciful figural-type bottles, and those bottled in smaller medicinal type bottles in usually aqua glass. Either bottle held a large percentage of alcohol however temperance proponents could morally prescribe to "medicinal" bitters without public rebuke.

DRAKES/1860/PLANTATION BITTERS/PATENTED 1862 embossed on the shoulder ("roof") of a square, cabin shaped bottle, was introduced in 1860. The bottle, following a fad of figural type bottles introduced in the late 1850s, was designed and registered in 1862 by P. H. Drake of Binghampton, New York. Remains of two Plantation Bitters were recovered from Phase I excavations of Trench 9 around Feature 21 blown in puce (purplish-amber) and in amber glass. Early Plantation Bitters bottles are known to have blown by the Lancaster Glass Works of Lancaster, New York. Lancaster Glass Works were manufacturers of glass telegraph insulators for the U. S. Government during the Civil War. During this period they produced a variety of unusual colored bottles from mixtures of left-over glass and cullet.

Lancaster Glass Works may have also manufactured the puce colored BOURBON/ WHISKEY/ BITTERS found north of the tracks in Block 5. Bourbon Whiskey Bitters were bottled in barrel shaped bottles typical of the figural fad beginning in the late 1850s. This barrel shaped Burbon Whiskey Bitters has a refired pontil and was blown into a contact mold probably in the late 1850s or early 1860.

A later figural-type bitters bottle in an oval shape with ribbed sides representing logs was recovered from Trench 4 of the site. An application for patenting this bottle design was filed by William H. Petzold of Baltimore, Maryland in April of 1886 and was patented in February of 1887. Petzold's bottle was labeled in the oval front panel as "Petzold's German Bitters."

A rather insignificant looking, plain cylinder aqua bottle, recovered in 6 sherds from Level 6 of the privy (Feature 142) is embossed J. WALKER'S/VB on the base. Labeled bottles identify this bottle as "Walker's Vinegar Bitters" sold as a medicinal type bitters. The Walker's Vinegar Bitters recovered from the Privy is an early example of bottles blown for this brand into a contact mold with a rolled lip prior to 1880.

Beers

The most common remains of beer bottles found at the Old Town Village site are those from the local successful brewery of Robert Portner who appears to have been in business in Alexandria from 1862 until prohibition in 1916. Robert Portner's Brewery is listed in von Mechow (1996:364) as located on property on Shooters/Shuters Hill in Alexandria leased by Robert Portner between 1862 and 1865. Available Alexandria city directories list the Robert Portner Brewery on St. Asaph Street on the corner of Wythe Street from 1870 to 1915. The Prince William Hotel, built by Robert Portner in 1904 near the former Manassas Gap Railroad in Manasssas, was one of the famous early 20th century hotels in Virginia. The Prince William Hotel burnt in 1910 (Ratcliffe 1978:103).

A collection of Alexandria bottles were examined at the bottle collectors bottle glass show in Harrisonburg, Virginia on 20 April 1977. Early Robert Portner beer bottles appear to have been blown in green glass with applied blop top lip finishes. The "early" Portner beer bottles examined were embossed: "R. Portner/Alexandria, Va. on the front and "Bottle/Not To/Be Sold" on the reverse. Examples of the early Alexandria Robert Portner beer bottles were not identified in the Old Town Village collection. An intact aqua pint beer bottle embossed R. PORTNER/ WASHINGTON, D. C. recovered from Level 2 of the privy may be a example of an early Portner beer, perhaps prior to his establishment in Alexandria. This bottle was blown in a contact mold and has a heavily applied blop top that would have been sealed with a cork stopper.

The remainder of Robert Portner beer bottles recovered from the site are amber pint bottles, either blown in chilled iron molds, or were machine-made with crown top closures. These beers are embossed: ROBERT PORTNER BREWING CO./ ALEXANDRIA, VA. around TRADE-TIVOLI-MARK inside a Diamond. Remains of the Portner beer bottles were found in Phase I, Trench 18A (FS 139), and STP's 10 and 11. During Phase II, remains of Portner's beers were recovered from the fill below Trench 4 Extended, and the fill of Block 5. NS Trench 4'bs (FS 35). One Portner beer blown in clear manganese glass was recorded from Level 1 of the privy Feature 142. *Tivoli* brand was trademarked in the U. S. Patent Office by Robert Portner of Alexandria, Virginia in 1878, and again in 1893, for lager beer. Robert Porter stated that he had begun using this brand name in August of 1877 (Hurst 1989a:72).

Sherds of an aqua beer from Level 3 of the privy (Feature 142) are embossed: JOHN P. DONAHOE/WILMINGTON/DEL. inside an oval slug plate. THIS BOTTLE/NOT TO/BE SOLD is embossed on the reverse side. The Donahoe beer is a cylinder pint having an applied blop top. Records in Wilmington, Delaware were not consulted to determine the dates of business of the Donahoe brewery. Slug plates, a removal metal plate having the intended bottle embossing, were inserted into bottle molds prior to blowing an order of specific embossed bottles. The removable capability of the slug plate enabled the same bottle mold to be reused for different customers instead of having individual molds for each customer. Slug plates were designed and patented by Gustavus Storm of Philadelphia in 1875 (Hurst 1990:A).

Sherds representing two aqua pint beers embossed: H. ENGLEHARDT/ ALEXANDRIA,/ VA. inside an oval slug plate with THIS BOTTLE NOT TO BE SOLD on the reverse were recovered from Levels 4 and 6 of the privy (Feature 142). Henry Englehart, a post-Civil War brewer appears in the available Alexandria City directories from 1880 through 1887 as located at the west end of Duke Street.

A widely distributed pre-prohibition lager beer was that of the Christian Moerlin Brewing Company of Cincinnati, Ohio. Remains of one amber pint beer embossed:

CHRISTIAN MOERLIN/CINCINNATI around an M inside a Crown monogram was recovered from Feature 83 in Block 1, north of the building and associated with the building foundation. The trade mark for the M inside a Crown used by the Moerlin Brewery was registered in 1894 claiming that they had used this symbol since 1887 (Hurst 1989a:47). This bottle was blown in a chilled iron mold, and according to the trademark, was distributed after 1887.

Three sherds representing two aqua cylinder beer bottles blown in chilled iron molds and distributed by F. H. Finley of Washington, D. C. were recovered from N40/E130 in the interface between the Level 1 fill and Level 2. These bottles are embossed: TRADE/MARK/REGISTERED/F. H. FINLEY & SON/1898-1902/BOTTLERS/10-12 MASS. AVE. N---/ WASHINGTON, D. C. with A. B. & C. CO. appearing on the base. Standard F. H. Finley beer bottles are embossed F. H. Finley /Wash., D. C. around an F inside a Diamond adopted in 1895 for malt liquors (Hurst 1989a:28). The two recovered Finley beer bottles are apparently a commemorative, or specialty bottle, issued by F. H. Finley in about 1902.

Mineral Waters and Sodas

An unembossed clear soda bottle of 20th century franchise vintage was recovered from the Northeast Bisection of Feature 129. This soda has a swirled shoulder and neck pattern and was machine-made with a crown top closure. The design for this bottle was filed by George N. Mas of Washington, D. C in 1926 and was likely used until the 1930s when applied colored labels were placed on soda bottles.

Remains of a clear, handled Coca-Cola syrup jug from the surface of Trench 18A has a red print on white applied color label identifying it as distributed by: THE COCA-COLA COMPANY/COCA-COLA/REG. U. S. PAT. OFF. Embossed at the base of the neck is: DESIGN PAT./184,991. This design number was patented in 1959 for a safety lid seal manufactured by Alco Aluminum.

One intact and two early type Saratoga (New York) mineral water bottles were recovered from the privy (Feature 142). The intact mineral water bottle from Level 6 is embossed: HATHORN SPRINGS/SARATOGA, N. Y. The Hathorn Springs bottle is a squat cylinder blown in a teal-blue colored glass with an applied brandy lip finish and a post bottom mold. Two "Congress" mineral water bottles from Level 4 of the privy are represented by green and dark green glass sherds embossed: CONGRESS WATER CO. in a double-outline in an arch over a C monogram and SARATOGA, N. Y. at the bottom. CONGRESS WATER also appears on the reverse side. The C monogram was trademarked in 1877 by The Congress and Empire Spring Company of Saratoga, New York for "waters for medicinal purposes" (Hurst 1989b:9), however manufacture of these mineral water bottles can date to the 1850s and 1860s (White 1974:40-43).

An intact aqua "hutchison" type soda from the south end of Trench 5 is embossed F. P. CUMMINGS/BOTTLER/POCAHONTAS, VA. Pocahontas is located in the southwestern part of Virginia near the West Virginia border west of Bluefield and the Cummings firm was not traced. Hutchinson type soda bottles have a heavy lip finish to take a pull-up wire attached to a gasket seal and were patented by Charles G. Hutchison of Chicago, Illinois in 1879 (Hurst 1990:13, F).

A shoulder sherd of a clear, machine-made franchise soda embossed NUGRAPE in scrip was recovered from the Ap horizon and fill below of Trench 4 Trench 4 Extended in Block 3. This Nugrape soda bottle has triple rings around the base of the neck. This bottle design was registered by Alfred E. Kelly of Atlanta Georgia in the U. S. Patent Office in 1923 and was assigned to the Nugrape Company of Atlanta, Georgia. Also from Trench 4, a plain light green mineral water bottle embossed PLUTO on the base with a representation of Pluto, was recovered from the fill (FS 4). The trademark for Pluto was registered by the Henry Drug Company of Louisville, Kentucky in May 1900 for natural spring water (Hurst 1989b:45). This Pluto Water bottle has a Owens automatic bottle machine-mark on the base placing it's date of manufacture after 1907/08.

E. O. RAMMELL CO./ALEXANDRIA, VA. appears embossed diagonally in script on the front and reverse of a clear soda recovered from the fill of the south end of Trench 5 near the surface. A. G. W./94-1, the trademark of the American Glass Works of Richmond, Virginia and Paden City, West Virginia in business from 1908 through 1935, appears on the base. The Rammel Co. appears in the Alexandria City Directories in 1915 at 408-410 Princess Street as ginger ale manufacturers, and between 1917 and 1919 at the corner of Wilkes and Columbus Streets. The next available city directory for 1924 does not list this firm.

Sherds of an attractive pre-Civil War ginger ale or mineral water bottle in dark green glass embossed J. M. ROSEBERRY/ ALEXANDRIA/VA. on the obverse side was recovered during Phase I excavations from Trench 8. Roseberry's bottle is embossed with an Eagle on a Shield on the reverse side below a number of stars. Roseberry's bottle has an applied blop top with a graphite pontil mark on the base. John M. Roseberry purchased a lot of land and buildings on the south side of the intersection of King and Payne Street in 1854 (Alexandria Corporate Court Deeds Q3:457) and first appears paying taxes on this property, and a carriage, in Ward 2 in 1858 (page 18). During the Civil War in 1862, John M. Roseberry, then residing in Prince William County, sold the premises to Samuel L. Shiner and Kline Roseberry of Warren Co., New Jersey. The property was sold for unpaid taxes in 1864 by the United States of America (Case No. 479; Sale Certificate No. 82) (Alexandria Corporate Court Deeds V3:94, 403-404).

SUMMERS & ALLEN/ALEXANDRIA is embossed vertically on an intact aqua round- bottom hutchison soda recovered from the General Collection of Feature 142. Summers and Allen do not appear in the extant Alexandria City directories under soda or mineral water manufacturers. An interlined 1881/82 directory at the Lloyd House in Alexandria has Summers & Allen written in pencil under "Soda Water Manufacturers (page 182). This directory was possibly corrected, or updated, for the 1883/84 directory indicating that this firm was shortly in business in Alexandria about 1882 or 1883.

Medicinal

The majority of the plain medicinal bottles from Feature 142 (Privy) were plain aqua cylinder bottles with a tooled single-band collar lip finish holding approximately 5 1/2 ounces. By the neatly finished. and regular appearance of these plain bottles, they appear to have been manufactured during the first quarter of the 20th century, and have often been identified as such. This bottle was designed and patented in the U. S. Patent Office by Samuel Shinn of the Lancaster Glass Works of New York in 1858 (Hurst 1990:7, A).

Plain aqua medicinal bottles of this type are shown as part of the U. S. Army Quartermaster Corps medical equipment (Nevin 1986:111), and some of these bottles recovered from the privy may have been Civil War related deposits. Sherds of one medicinal bottle that was issued during the Civil War period, and recovered from Levels 5 and 6 of the Privy, are embossed U. S. A. HOSP. DEPT. This is an olive-amber cylinder bottle with an applied double-collar lip finish blown into a contact mold. Generally, these bottles held chloroform, quinine (usually administered with a shot of whiskey), opium, ipecac, rhubarb, and "squil" (an expectorant and diuretic). Calomel and tartar emetic, which caused mercury poisoning, were banned by the Federal surgeon general in 1863. "Patent medicines" in rectangular bottles, either labeled or embossed with brand names, were purchased in vast quantities by the soldiers, but were not part of the standard medical equipment issued (ibid. 106-111).

One small bottle with contents from Level 5 of the Privy (Feature 142) is embossed: DR. SETH ARNOLD'S/BALSAM on the sides. This is a pale aqua, rectangular bottle blown into a contact mold with a flared lip finish. The base has a diagonal mold seam indicating manufacture until about 1860.

An intact cough medicine bottle embossed COUGH SYRUP inside a front panel and J. W. BULL'S/BALTIMORE in the side panels was recovered from Level 4 of the privy (Feature 142). John Bull brand was first sold in 1855 and continued in business until after 1894 (U. S. Patent Office 1894:197-199). J. W. Bull's Cough Syrup bottle is a rectangular, 4 oz. bottle blown in aqua glass with a tooled, tapered lip finish. A local advertisement in 1885 claims that "Dr. Bull's Cough Syrup will cure your Cough at once" (Alexandria Gazette 1885:1.3).

CALIFORNIA/FIG/SYRUP, a laxative medicine bottle found in STP 11, has a history beginning in Reno, Nevada in 1879. A branch office was established in New York in 1890 and the firm became California Fig Syrup of San Francisco in 1896. Sherds of California Fig Syrup from Phase I excavations were manufactured in a chilled iron mold and blown in clear manganese glass. Manganese was used as a decolorizer between 1880 and 1915 in the eastern part of the United States. This bottle was probably blown between the establishment of the New York Office in 1890 and the date of transfer to San Francisco in 1896.

A sherd of CRISWELL'S/BROMO-PEPSIN, a medicinal that CURES HEADACHE AND INDIGESTION was recovered from Level 1 of the fill above the cap in Block 3. This is a small amber cylinder bottle of approximately 3 ounces having air vents around the shoulder and was blown into a chilled iron mold. Bromo Pepsin was registered in 1893 by Francis M. Criswell of Washington, D. C. stating that this brand had been in use by them since June of 1885.

DAVIS & MILLER, BALTIMORE DRUGGISTS distributed their botanical drugs in a small, rectangular 4 ounce bottle. Wilson and Wilson (1971:112) state that they were in business in Baltimore from the 1860s through the turn of the century. The beginning date cited by Wilson and Wilson may be in error as the sherds of the Davis and Miller bottle recovered from Level 7 of the privy (Feature 142) has a refired *pontil* mark on the base indicating that the bottle was blown before 1860.

DUFFY MALT whiskey, a medicinal whiskey sold by the Duffy Malt Whiskey Company of Baltimore through prohibition, was distributed in a large amber cylinder bottle. The label and design for this bottle were registered by the Duffy Malt Whiskey Company in 1886. Duffy Malt, containing fortified wine, high proof brandy, and alcohol was advertised and sold primarily as a consumption (tuberculosis) cure. Investigated during the American Food and Drug Acts in the early part of this century, Duffy's Malt was considered one of the "great American frauds" (Bishop 1980:20-21). Sherds of these bottles were found in TU 7 and STP 11. Wesley Makeley, a post-Civil War resident of the old Page property on the site, and a resident of the site at his death in 1895, died of consumption in 1895 (Pippenge 1980:223).

An aqua cylinder bottle embossed C. ELLIS & CO./PHILADA. in the General Collection of Feature 142 has a tooled double collar lip finish and holds approximately 8 ounces. The bottle is also heavily opalized and the method of manufacture could not be determined. Air vents do not appear indicating that the bottle was made in a contact mold prior to 1880 when air venting of molds was a fairly standard procedure. Specific information on Ellis and Company of Philadelphia was not located.

FREYS'/VERMIFUGE/BALTIMORE appears embossed vertically on three sides of an aqua square bottle containing about 4 ounces is also from the General Collection of Feature 142. Frey's, as a brand name, does not appear in the U. S. Patent Office records as a registered trademark, or label, after 1872. Vermifuge was a generic term used to identify the product as a cure for intestinal worms.

Two variants of Hegeman's medicinal bottles dating after about 1862 were recovered from Levels 4 and 8 of Feature 142. The original wholesale drug house firm, established as Ruston and Aspinwall in the 1830s, became Hegeman and Company in 1862 when William Hegeman became president of the company (Wilson and Wilson 1971:119). A label registered in the U. S. Patent Office by Hegeman and Company, Chemist and Druggists, in 1880 indicates a formal name change incorporating "Chemist" at that time. Five sherds from Level 4 are embossed HEGEMAN & CO. in the front panel and H.HELMBOLD/ PHILADELPHIA in the side panels. This is the older of the variations of the Hegeman bottles produced between about 1862 and 1880. The bottle from Level 8 is intact, with contents, and is embossed HEGEMAN & CO. in the front panel and CHEMISTS/NEW YORK in the side panels indicating that it was manufactured in 1880 or after. These are larger rectangular eight ounce bottles with tapered lip finishes blown in aqua colored glass.

Four sherds of Hembold's GENUINE FLUID EXTRACTS/PHILA. from Level 8 of the privy (Feature 142). Hembold's is an aqua rectangular bottle having a single band collar lip and hinged base mold seams. Henry Hembold, chemist, of Philadelphia began distributing his better known brand of "Extract of Buchu" in 1851. Hembold's, with proprietors in New York City and Cincinnati, Ohio, operated until after the turn of the century (Wilson and Wilson 1971:119). It is unknown when this brand of Fluid Extracts was introduced.

An intact KELLER'S/ROMAN LINIMENT embossed vertically in the front panel and W. L. KELLER/BALTIMORE in the side panels of a rectangular, aqua bottle, is from Level 3 of the privy. The trademark for Keller's Roman Liniment was registered by William L. Keller of Baltimore in 1877.

LYON'S POWER embossed on the shoulder of a small cylinder puce (purplish-amber) bottle containing about 3 ounces, were found in Level 7 of Feature 142. This bottle was blown into a four-section contact mold and has an inverted lip finish. The base has an open pontil indicating manufacture prior to 1860. Lyon's Powder (type of remedy not stated) was introduced by Emanuel T. Lyon, a chemistry professor at Princeton, in about 1850 (Wilson and Wilson 1971:126).

One sherd of an aqua cylinder MEXICAN MUSTANG LINIMENT was found in Level 4 of Feature 142. Wilson and Wilson (1971:127) state that Mexican Mustang Liniment was compounded by George W. Westbrook, a chemist of St. Louis, Missouri ca. 1850, and was assigned to the firm of Barnes and Park of New York in 1856. Mexican Mustang Liniment brand was registered as a trademark by the Lyon Manufacturing Company of Brooklyn, New York stating that they had used this brand name since 1 January 1849.

MITCHELLS/EYE SALVE appears embossed on a small, 1 oz. square bottle, from Level 4 of the Privy (Feature 142). Mitchells Salve bottle was blown in a contact mold having an inverted lip finish and a refired basal pontil mark indicating that this bottle was blown prior to 1860.

A later type "appearing" aqua rectangular medicinal bottle embossed NATIONAL REMEDY/COMPANY/NEW YORK inside a front panel is from the ash layer of the west extension of Block 3. The lip finish is a tooled single-band-collar lip and the bottle was blown into a contact mold.

One side panel of an amber square bottle, identified as manufactured and distributed as Paine's Celery Compound, were recovered from Block 3, West Extension of Level 2 in Fea. 142. Paine's Celery Compound was registered as a brand name by Milton K. Paine of Windsor, Vermont in 1882 as a medicinal compound.

Aqua sherds embossed RENOVATING/RESOLVENT and R. R. R./RADWAY - NEW YORK/ ENTD ACCORDING TO/ACT OF CONGRESS on the sides were recovered from Levels 5, 6 and 8 of the privy (Feature 142). Radway's Renovating Resolvent , a sure cure all, contained potassium iodine, concentrated sarsaparilla decoction, bitter almond, water, and Parish's simple elixir with water as a sweetener (Wilson and Wilson 1971:134). Radways was registered as a trademark in 1877 by Radway and Company of New York giving a beginning date of use of 1 January 1852.

SALVATION OIL, "The Greatest Cure on Earth for Pain" was registered in 1883 by Adolph C. Meyer of Baltimore, Maryland as a liniment. This is an intact aqua cylinder vial-type bottle that was deposited in Trench 5. Salvation oil was advertised in the Alexandria Gazette in 1885 at 25c a bottle.

Five sherds of a DR. SANFORDS LIVER/INVIGORATOR embossed NEW YORK in the side panel were recovered from Level 8 of the privy. This is an aqua, rectangular bottle, blown into a contact mold. Samuel T. Sanford, a New York City physician, began selling the invigorator in the mid 1840s as Sanfords Liver Remedy. Apparently the name was changed in the 1850s when Weeks and Potter of Boston, Massachusetts became an agency for the invigorator (Wilson and Wilson 1971:136).

Two intact bottles formerly containing Mrs. Winslow's Soothing Syrup were located in Trench 8 and in Level 8 of Feature 142. The older Winslow's bottle manufactured from about 1846 to 1880 from Level 8 is embossed: MRS. WINSLOW'S/SOOTHING SYRUP/CURTIS & PERKINS /PROPRIETORS. The newer bottle from Trench 8 is embossed: MRS. WINSLOW'S/SOOTHING SYRUP/THE ANGLO AMERICAN DRUG CO./SUCCESSORS TO/CURTIS & PERKINS/PROPRIETORS These are aqua cylinder, vial-type bottles, with rolled lip finishes containing about 4 ounces. An advertisement in the Alexandria Gazette states that the syrup had been in use for 40 years "with never-failing success" indicating that Mrs. Winslow's was formulated in 1846. Mrs. Winslow's Soothing Syrup was registered as a brand name in 1877 by Jeremiah Curtis and Sons (or Curtis and Perkins) of New York. Curtis and Perkins became the American Drug Company in 1880 (Wilson and Wilson 1971:145-146).

The base ingredient of Mrs. Winslow's Soothing Syrup, mainly used as a teething medicine for babies, was morphine. Because of infant deaths attributed to Mrs. Winslow's Soothing Syrup, the brand became known as a "baby killer" and eventually lead to the passage of the American Food and Drug Act of 1906 (Bishop 1980:20). Post-Civil War residents of the site, Wesley and Catherine Appich-Makeley's infant son, W. W. Makely, died in 1880 of "teething" (Pippenger 1995:223).

Pharmacy/Druggists

An intact Alexandria druggist bottle distributed by Cook & Creighton was recovered from Level 5 of Feature 142. This bottle, embossed COOK & CREIGHTON with DRUGGISTS /ALEXANDRIA, VA. embossed in the side panels, was blown in aqua colored glass. Cook & Creighton's bottle is a small, approximately 2 ounce size, with a tooled tapered lip finish. The base of the bottle has a diagonal mold seam and snap case marks above the heel. Snap cases, replacing pontil rods, were tools used to hold the bottle while applying the lip finish, thus eliminating the rough marks left on the base by pontil rods. Cook and Creighton do not appear in the 1860 Washington, D. C. directory that lists Alexandria merchants. Alexandria directories list Cook and Creighton at 107 King Street in 1873/74. In 1876/77 the firm is listed as W. Creighton at 85 King Street.

Five sherds of a pharmacist bottle from Level 4 of Feature 142 have been tentatively identified as a Washington City pharmacy. The partial embossing present on these sherds are : ...HAYS &.../PHARMACISTS/...7 DIVISION ST. N... W. T. & CO./6 appears on the base. This is an oval clear manganese glass bottle with a single-band collar lip finish blown in a chilled iron mold. W. T. and Co. on the base is the trademark of Whitall Tatum & Co. of Millville, New Jersey who became Whitall Tatum Co. (eliminating the "&" from their trademark, in 1901 placing manufacture of this bottle prior to that date.

Two variations of Janney & Co. druggist bottles of Alexandria were found on the site from Trench 5 and from Feature 142. One intact, and a sherd of a second clear Janney druggist bottle were from Trench 5. The variation in aqua glass was from Level 2 of Feature 142. The Janney bottles from Trench 5 are clear, oval bottles embossed on the front: JANNEY & CO. /DRUGGISTS /ALEXANDRIA, VA. inside a slug plate indicating manufacture after the slug plate was invented in about 1875. The aqua specimen from Level 2 of Feature 142 is rectangular and embossed JANNEY & CO. in a front panel and DRUGGISTS /ALEXANDRIA, VA. on the side panels. There are snap case marks above the heel and the lip finish to this bottle is missing. Janney and Co. were not located in the 1860 Washington City directory listings for Alexandria. Janney and Co. are listed between 1870 and 1876 at 145 King Street. Janney and Company appears at the NW corner of King and Royal Streets in the 1881/82 directories and advertised in the 1883 directory. Warfield Druggists is listed at the Janney and Company location in 1884 and Janney does not appear in the directories after 1883.

An intact druggist bottle embossed: PEEL & STEVENS/ALEXANDRIA, VA. was recovered from Level 7 of Feature 142. This is an aqua, rectangular bottle containing about 3 ounces, and has a single-band collar lip finish. Peel and Stevens are listed in 1860 as wholesale druggists located at 29 King Street, and as Peel, Stevens and Company at the corner of King and Alfred Street in Alexandria in that year. The firm of Peel and Stevens does not appear in the first post-Civil War directory available for 1870.

One shed of a bottle embossed: W. D. HUDSON/DRUGGIST/ALEXANDRIA, VA. recovered from Level 7 of Feature 142 has the lip finish missing. This is a clear, oval druggist bottle. W. D. Hudson appears in the Alexandria City directories from 1880/81 through 1893/94 at 265 King Street.

JOHN LUNT/DRUGGIST/ALEXANDRIA, VA. appears embossed vertically on the front of an intact clear rectangular bottle containing about 4 ounces from the eastern half of the west extension of Feature 142. The embossing on this bottle is surrounded by a wreath. The base is embossed PAT. --13/87 indicating manufacture after 1887. John Lunt, druggist, is listed in the Alexandria directories from 1884/85 through the 1893/94

directories at the NE corner of King and Washington Streets (631 King Street). His drug store is not listed in Alexandria in 1898/98.

An intact rectangular bottle embossed JNO. T. COLE & CO. in an arch over DRUGGISTS, a Mortar and Pestle monogram, and ALEXANDRIA, VA. at the heel was blown in a chilled iron mold in clear manganese glass. This bottle contains about 2 1/2 or 3 ounces and has a flared lip finish. Jno. Cole is listed in the Alexandria directories between 1880 and 1888 at 209 King Street at the corner of Alfred, and in 1888/89 at 824 King Street.

Culinary

A complete culinary bottle, probably a relish or pickle type container, from Alexandria found in Feature 240 is embossed: BLONDHEIM & SWIFT/SB Monogram/CITY MARKET/ALEXANDRIA, VA. This oval bottle having a single-band collar lip finish was blown in a chilled iron mold (1880-1930), in clear manganese glass that used between 1880 and 1915. The city directories for this firm was not currently researched.

From Level 3 of Feature 142 an intact extract bottle was recovered embossed DAVIS & MILLER /BALTIMORE and FLAVORING EXTRACT on the sides. This is a clear, rectangular bottle containing about 3 ounces with a single band collar lip finish. The bottle is stained and it is unknown if this was blown in a contact or chilled iron mold. A pale green cylinder bottle embossed DAVIS' O. K. BAKING SODA around the shoulder recovered from Trench 4 does not give a location for "Davis." This Davis' Baking Soda may have also been bottled by Davis of Baltimore. No further information was located on Davis & Miller of Baltimore.

A clear, bulbous bottle with fluted shoulders and heel, and small mouth opening, was found in the west extension of Feature 142. This bottle is intact and is embossed on the base: HEINZ/PATD JANY 13TH 1882/7. January 18 of 1882 is not a patent date. U. S. Patents were issued weekly on Tuesdays and the patent dates for January of 1882 were the 3rd, 10th, 17th, and 24th of January. The design for this bottle, identified as a "pickle bottle" was filed on 27 January 1882 by Henry J. Heinz of Pittsburg, [sic] Pennsylvania. The design (Design No. 12,803) was registered by the U. S. Patent Office on 14 March 1882. With the small mouth opening, it is curious as to how they were ale to get pickles into this bottle.

WORCESTERSHIRE SAUCE embossed around shoulder of an intact light green bottle from the west exension of Feature 142, has LEA & PERRINS embossed vertically on the side of the bottle, and JD/4/5 embossed on the base. The sauce bottle is a half pint container and was blown in a contact mold. The trademark for Worcestershire was registered in the U. S. Patent Office in 1892 by Lea and Perrins of Worcester, England stating that they began using this name in 1874 as a sauce for meats, fish, game, gravies, and soups. J. D. on the base indicates that the bottle was distributed by John Duncan's Sons, an agent for the United States in New York City. The probable dates of manufacture of this bottle are between 1874 and 1880. An associated glass stopper to this bottle was not recovered although a light green glass stopper embossed LEA & PERRINS was recovered from STP 15. Embossing of Worcestershire on the bottles and stoppers were discontinued in 1922.

Remains of Rumford's Baking Soda bottles, a brand introduced in 1867/68, were found in Levels 2, 3, 4 and 7 of Feature 142. Four intact bottles were recovered from Levels 2 and 4. One intact sample size bottle was found in Bock 3, Fea. 142, L2, West Ext. with a paper of sewing needles inside the bottle. Rumford's bottles recovered from the site range in variations of a very pale green to a dark aqua. These are embossed RUMFORD around the shoulder, and usually RUMFORD on the base. Rumford's bottles are almost identical to the plain aqua cylinder medicinals also found in Feature 142. The difference between the two items are that the Rumford's bottles are blown in cup molds (introduced in 1860) and have mold seams above around the bottle above the heel.

Fruit Jars

Remains of one machine-made canning jar of aqua glass embossed BALL/MASON in a shallow strike script was recovered from the fill of STP 10. The trademark for Ball, used since 1894, was registered by the Ball Brothers Glass Manufacturing Company of Muncie, Indiana. Ball Brothers was the first jar manufacturer to obtain a license to make machine-made jars in 1909 (Scoville 1948:105-108). In 1917, Ball Mason was re-registered with a slight change in the embossing that produced a heavy, deep strike, or embossing.

An aqua glass jar lid embossed: PAT.D. FEB. 12.56 DEC. 17 61 NOV 4. 62 JUNE 9.68, around a FHJ Co. monogram ,inside a Maltese Cross, was found in Trench 4, Level 1. This jar lid was initially patented on 12 February 1856 by R. W. Lewis who assigned the patent to Salmon B. Rowley of the Hero Glass Works. The Hero Glass Works was in operation between 1856 and 1884 in Philadelphia. The Hero Glass Works (HGW monogram) was succeeded by the Hero Fruit Jar Co. (FHJ Co. monogram) that operated from 1884 until 1909. Hero manufactured the Hero, Gem, and other jars. This jar lid, since it has the FHJ Co. monogram, was marketed by the company from 1884 until 1909.

Remains of aqua GEM jars having a HGW monogram were found in Levels 2-5 of Feature 142. The bases of these jars are embossed PAT. DEC. 17 67 REIS SEPT 68 around/PATD NOV. 26 1867. The body of this jar (also used for the Hero Jar) was patented by the Lockport Glass Works of Lockport, New York in November 1867 and was sold to the Hero Glass Works in December 1867. The Gem jars have ground lips and all appear to have been quart sizes. These Gem jars have the HGW monogram of the Hero Glass Works in business from 1856 until 1884 under that name.

An aqua glass jar lid embossed: TRADE MARK MASCOT IMPROVED/REGISTERED MAY 23D 1871 around a CFJ Co. monogram was manufactured by the Consolidated Fruit Jar Company of New York City who manufactured jars and jar lids for John L. Mason, a metal smith who invented the original Mason's "1858" jar. The 1871 date appearing on the lid is for the patent of the vertical bar on the metal screw-on cap. This was registered by John L. Mason of New York for use on Mason's Improved Jar, also registered in 1871 by John L. Mason. The CFJ Co. monogram appearing on this liner was registered in 1878 by the Consolidated Fruit Jar Company claiming use of the CFJ Co. monogram since 1877. This jar lid dates between 1877 and the demise of the Consolidated Fruit Jar Co. shortly after the turn of the century. (Note: the Mascot Improved jar lid should not be confused with the Mascot Improved canning jar introduced by Charles Brady of Washington, Pennsylvania in 1889).

Sherds of a pale aqua Mason's Improved jar embossed MASON/IMPROVED were recovered from Levels 6 and 7 of Feature 142. The jar is a "shoulder seal" meaning that it has a high shoulder and was sealed on the shoulder with a rubber gasket instead of on the ground lip. John L. Mason of the John L. Mason Manufacturing Co. of New York registered the Mason's Improved brand name in 1871 stating that manufacture of Mason's Improved jars had begun in 1868.

Remains of aqua MASON'S/PATENT/NOV. 30TH/1858 canning jars were found in Levels 2, 3, 6, and 8 of Feature 142. The Mason's 1858 jars have ground lips and screw threads. The name "Mason" became a generic name for "mason jars" soon after it's invention was patented by John Landis Mason on 30 November 1858. Contrary to popular belief that these jars were first manufactured in 1858, embossed jars bearing this embossing, and Mason's name, were first marketed in 1862. After years of litigation in the Federal Courts over the "Mason" name, the brand name for "Mason" was finally registered in 1879 by the Consolidated Fruit Jar Co.

A number of sherds to fruit jars embossed MILLVILLE/ATMOSPHERIC/FRUIT JAR on the front and WHITALL'S PATENT/JUNE 18TH 1861 on the reverse side were recovered from Feature 142, Levels 2-4 and Level 6. One Millville Fruit Jar has a WT & C. mongram embossed on the base. The original Millville jars took a glass lid and an iron yoke clamp that fit a grooved, wax-seal type lip, closure. John Whitall of Philadelphia patented the jar in 1861 and the jar was manufactured by the Whitall-Tatum Company of Millville, New Jersey in business from 1857 until purchased by Armstrong Cork Company in 1938. The original Millville jar closure was replaced by a glass lid and metal pivot clamp in about 1884 that changed the lip seal to a slight groove lip finish.

Cosmetic/Toiletry

Three intact perfume bottles were identified in the Old Town Village bottle collection. These include a perfumer embossed: X BAZIN/PERFUMER/NEW YORK, a clear glass perfume container from Level 8 of Feature 142 holding about 2 ounces. Bazin's perfumes were produced from the late 1850s until 1887 (Wilson and Wilson 1971:106).

A similar 2 ounce perfumer from the general collection of Trench 4 is embossed LUNDBORG PERFUMER and has a rolled lip and a ground neck to take a glass stopper. The Lundborg trademark was registered in 1889 by Ladd and Coffin of New York stating that they had used this brand since 1849 for perfume. Labels appearing on these bottles were "Lundborg's Triple Extract of Jockey Club" and "Lundborg's Novel Box Rochero Perfumes."

The remaining perfumer, considered to be a European import, is a small aqua container blown in a pattern mold representing a wicker covered oval chestnut flask with handles. The bottle from the fill of the east extension of Feature 142 has an inverted lip finish, an open basal pontil mark, and an oval label area. These were probably blown in Europe until the 1880s.

Ink Bottles

Seven ink bottles produced for commercial uses appear in the Old Town Village artifact inventory. All of the ink bottles are unembossed, but have distinctive shapes that identify their function.

Among the collection are four multisided ink bottles from Feature 142 (privy) known as "umbrella" inks manufactured between the introduction of multisided bottles in the early 1840s and 1860 when basal pontil marks and diagonal mold (hinge mold) seams no longer appear on commercially produced bottles. Umbrella ink bottles produced after 1860 have no pontil marks on their bases. One umbrella ink from Feature 61 in Trench 7, which has mixed deposits, is represented by a single aqua glass sherd was blown in a contact mold and can only be generally dated between the 1840s and 1880.

A 12-sided umbrella ink found downslope from the Backhoe Trench in the Ap horizon has an open pontil mark on the base. The lip finish to this bottle is missing. One base sherd of an 8-sided umbrella ink in peacock blue glass was recovered from Level 5 of Feature 142. This has an open pontil base mark. A similar 8-sided umbrella ink in amber glass from Level 7 of Feature 142 has a hinged base and rolled lip finish. A small sized, intact aqua umbrella ink from Level 8 of Feature 142 has a sheared lip and a deep refired basal pontil mark.

One aqua cone shaped bottle embossed 3 on the base (indicating the mold number) was found in the west extension of Feature 142 This cone ink bottle is opalized and dates of manufacture could not be determined other than a general date of post-1860.

A square, cabin shaped, ink bottle from Level 3 of Feature 142 is intact. The bottle has a single band collar lip finish and was blown into a chilled iron mold. Air-vents are not present on the bottle indicating that it is an early chilled iron mold product, likely dating in the 1870s.

Telegraph Insulators

Deposits of broken early pin type telegraph insulators were found in three areas of the Old Town Village site. Between Trenches 15 and 16 remains of five telegraph insulators were identified. Two of the insulators, known as "Leffert" insulators, were identified. These insulators were named after Marshall Lefferts, a New York City business supplier of telegraph wires (McDougald and McDougald 1990:4). Both Lefferts insulators were manufactured in aqua glass. One is embossed LEFFERT on the umbrella/saucer base, or heel, and has two wire ridges on the side. The other insulator, a cylinder "Leffert's Hook" insulator, manufactured by wrapping glass around a metal rod, was first used in about 1849. This insulator has a deep exterior groove and interior residue from the metal hook that was used to suspend this insulator from the top. "

Two insulators in aqua and green telegraph insulators from the same provenience known a "Pilgrim Hat" have a small cap (top) and a large flaring saucer, or umbrella base. Pilgrim Hat telegraph insulators were invented in 1846 by George Little of England. These were introduced into the United States in 1847 to replace glass furniture knobs then being used (ibid. 6). The remaining telegraph insulator of lime green colored glass is represented by a single cap sherd that may also be a Pilgrim Hat. Lefferts and Whites telegraph insulators were produced into the late 1860s/early 1870s (ibid.:6).

A deposit of six badly smashed telegraph insulators were excavated from the midden in Block 10. Identified were an aqua Lefferts insulator (11 sherds) and remains of one pale aqua insulator with part of the embossing ...EST/...NY recovered. The full embossing on the embossed insulator reads: U. S. TEL. CO./CHESTER, NY. and was used by the United States Telegraph Company between 1864 and 1866 when U. S. Tel was absorbed by Western Union (McDougald and McDougald 1990:22). The remaining insulators from this provenience were not further identified. These include a green insulator (2 sherds), an aqua insulator (11 sherds), a peacock blue insulator (38 sherds) and a peacock black-glass insulator having an umbrella skirt (6 sherds).

Remains of two early telegraph insulators were recovered from the railroad midden fill of Block 10. These were identified as an aqua Pilgrim Hat insulator and a peacock Leffert's hook. Dates and a brief history on these two types appear in the above paragraphs.

One intact 20th century insulator was recovered from Trench 5 embossed HEMINGRAY-4/MADE IN U. S.A. around the skirt. Known as "Petticoat" insulators, this insulator has drip points around the skirt and was blown into a chilled iron mold. Drip points on insulators were patented by Ralph G. Hemingray of Covington, Kentucky and James C. Gill of Muncie, Indiana on 2 May 1893. Hemingray Glass Co. (1870-1933) of Covington and Muncie, Indiana began producing machine-made insulators in 1919 indicating that this particular insulator was manufactured about 1893 until 1919. Hemingray Glass Company became part of the Owens-Illinois Glass Company conglomerate of glass houses in 1933.

Three wooden insulator pins were recovered from Feature 142. In Level 2 of this feature were a an intact threaded wooden pin and a portion of a second threaded pin. One intact wooden pin from Level 3 is wrapped with wire and was nailed with two wire nails to a wood support.

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POLLEN, PHYTOLITH, AND PARASITE ANALYSIS OF PRIVY DEPOSITS FROM OLD TOWN ALEXANDRIA, VIRGINIA

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Paleo Research Labs Technical Report 97-35

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November 1997

APPENDIX VII
Pollen, Phytolith and Parasite Analysis of Privy Deposits, Old Town Village Site, Alexandria, Virginia

by

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INTRODUCTION

A privy was excavated and sampled for pollen, phytoliths, and parasite eggs. Use of the privy may date between 1865 and 1891-1896. Privy fill from levels 3, 6, and 8 was examined for pollen, phytolith, and parasites to identify elements of the diet and parasites present. Levels 3 and 6 date from the 1870s and 1880s, while level 8 represents the Civil War period. Pollen and phytolith analysis was undertaken to identify foods consumed and/or discarded in the privy. Parasite eggs were identified in the course of pollen analysis to identify parasites present and assess relative levels of parasitic infection during the three time periods represented.

METHODS

Pollen

A chemical extraction technique based on flotation is the standard preparation technique used in this laboratory for the removal of pollen from the large volume of sand, silt, and clay with which they are mixed. This particular process was developed for extraction of pollen from soils where preservation has been less than ideal and pollen density is low. Parasite eggs respond in a similar manner as pollen to the extraction process and are recovered using this technique.

Hydrochloric acid (10%) was used to remove calcium carbonates present in the soil, after which the samples were screened through 150 micron mesh. The samples were rinsed until neutral by adding water, letting the samples stand for 2 hours, then pouring off the supernatant. A small quantity of sodium hexametaphosphate was added to each sample once it reached neutrality, then the beaker was again filled with water and allowed to stand for 2 hours. The samples were again rinsed until neutral, filling the beakers only with water. This step was added to remove clay prior to heavy liquid separation. At this time, the samples are dried then pulverized. Zinc bromide (density 2.1) was used for the flotation process. The samples were mixed with zinc bromide and centrifuged at 1500 rpm for 10 minutes to separate organic from inorganic remains. The supernatant containing pollen and organic remains is decanted and diluted. Zinc bromide is again added to the inorganic fraction to repeat the separation process. After rinsing the pollen-rich organic fraction obtained by this separation, all samples received a short (20 minute) treatment in hot hydrofluoric acid to remove any remaining inorganic particles. The samples were then acetolated for 3 minutes to remove any extraneous organic matter.

A light microscope was used to count the pollen to a total of approximately 100 pollen grains at a magnification of 600x. Pollen preservation in these samples varied from good to poor. Comparative reference material collected at the Intermountain Herbarium at Utah State University and the University of Colorado Herbarium was used to identify the pollen to the family, genus, and species level, where possible.

Pollen aggregates were recorded during identification of the pollen. Aggregates are clumps of a single type of pollen and may be interpreted to represent pollen dispersal over short distances, or the introduction of portions of the plant represented into an archaeological setting. Aggregates were included in the pollen counts as single grains, as is customary. The presence of aggregates is noted by an "A" next to the pollen frequency on the pollen diagram. A plus (+)

on the pollen diagram indicates hee pollen type was observed outside the regular count while scanning the remainder of the microscope slide.

Indeterminate pollen includes pollen grains that are folded, mutilated, and otherwise distorted beyond recognition. These grains are included in the total pollen count, as they are part of the pollen record.

Phytoliths

Extraction of phytoliths from these sediments also was based on heavy liquid floatation. Hydrogen peroxide (30%) was first used to destroy the organic fraction from 50 ml of sediment. Once this reaction was complete, calgon was added to the mixture to suspend the clays. The sample was rinsed thoroughly with distilled water to remove the clays and centrifuged at a low speed. Once most of the clays were removed, the silt and sand size fraction was dried. The dried silts and sands were then mixed with zinc bromide (density 2.3) and centrifuged to separate the phytoliths, which will float, from the other silica, which will not. Phytoliths, in the broader sense, may include opal phytoliths and calcium oxylate crystals. Calcium oxylate crystals are formed by spinach and other plants and are separated, rather than destroyed, using this extraction technique. Any remaining clay is floated with the phytoliths and is further removed by mixing with calgon and distilled water. The samples are then rinsed with distilled water, then alcohols, to remove the water. After several alcohol rinses, the samples are mounted in cinnamaldehyde for counting with a light microscope at a magnification of 500x.

PARASITES

Ascaris lumbricoides (intestinal roundworm) is a large parasite and commonly coexists in the intestine with Trichuris trichiura (whipworm) (Beck and Davies 1976:86). It is common in the mountainous areas of the southeastern United States, as well as on the fringes of many of the southern cities, even in modern populations. The adult female averages 30 centimeters (nearly 12 inches) in length, while the adult male averages 20 centimeters (8 inches) in length. Both are approximately 5 millimeters (nearly 1/4 inch) in diameter. Eggs produced by the female may be either fertile or infertile. The fertile eggs are rounder in shape than are the infertile eggs. Both types were noted in this study. Infertile eggs may be the result of faulty fertilization, egg laying prior to fertilization, or absence of males. An adult female intestinal roundworm may produce 200,000 eggs per day. These eggs are passed with the feces and may thus be introduced into soils.

Larvae appear within the eggs, usually within three weeks if conditions are ideal. Hatching takes place only after ingestion of the eggs. Eggs hatch in the small intestine where they burrow into the intestinal wall and enter the circulatory system. The small worms migrate to the heart and lungs, usually within seven days after infection. While in the lungs, the roundworms grow considerably in size and are then not able to pass back across the capillary walls. Instead, they migrate along the bronchial tree and trachea to the pharynx, where they are swallowed. Gravid females are noted in the intestine between five and eight weeks after initial infection. Both male and female roundworms have relatively short life cycles, surviving only a

year, at most, before being passed from the intestinal tract. The eggs, which have heavy shell layers, are resistant to environmental changes within the soil. Both heat and desiccation, however, will kill roundworm ova. Careless defecation habits spread viable eggs to local soils, which may remain infective for five years. Children playing in areas of contaminated soil usually become infected through contact with the mouth by invariably dirty hands. If night soil is used as fertilizer, infections may be contracted through eating raw vegetables. Transmission through water may be caused by improper drainage of surface waters, thus polluting wells and local water sources, such as rivers. Use of privies or indoor toilets, as opposed to promiscuous defecation close to the home, are important in preventing infections (Beck and Davies 1976:87-90).

Symptoms accompanying Ascaris (intestinal roundworm) infection include fever and cough, occasional bloody sputum, and pneumonitis, particularly with a heavy infection and during the stages when larvae migrate from the intestinal tract into the lungs or through the lungs. The condition may be referred to as Ascaris pneumonia. No eggs are present in the stool at this point, since the worms are immature and have not yet reached the intestinal tract. Most symptoms are associated with the presence of adult worms in the intestinal tract. Protein malnutrition may result from a heavy worm burden, particularly in growing children, if the diet is poor. Occasionally worms may group and ball up, causing intestinal obstruction, again usually in children. Because roundworms have an affinity for small orifices, they may migrate into the common bile duct or pancreatic duct, or block the airway if they migrate into the larynx or trachea. Death may be caused by Ascaris infestation through severe pulmonary invasion or an unrecognized migration of worms that result in asphyxia or obstruction of an essential organ (Beck and Davies 1976:87-90).

Trichuris trichiura (whipworm) resembles a buggy whip and may average 40 millimeters (nearly 16 inches) in length for the female. They have a thinner wall than do Ascaris eggs. Unlike Ascaris (roundworm), which lives free and unattached in the small intestine, whipworm lives primarily in the cecum, where it attaches itself to the intestinal wall. In heavy infestations, however, they may be found along the entire colon including the rectum. Whipworms are longer lived than roundworms, living for several years and producing eggs for discharge in the feces. Eggs develop into an infective larval stage within the eggshell in three to six weeks. Adverse conditions may delay development for several months or even years. Once embryos are ingested, larvae hatch in the jejunum, penetrating the intestinal villus, where it will develop for three to ten days. The adolescent worm moves into the cecum, where it develops into an adult. Ninety days are required between ingestion and production of a gravid female (Beck and Davies 1976:84-86).

Infections are common in areas of high humidity and hard clay soils, which hold moisture. Dense shade and warm climate are both necessities. Infection is usually heaviest among children, since hand to mouth contact in areas of soil pollution is a common vector in spreading these parasites. Whipworm eggs are less resistant to environmental changes, so infection may be more spotty than Ascaris (roundworm), with which it often co-occurs (Beck and Davies 1976: 84-86).

Light infestations with whipworm may produce no symptoms. Abdominal pain sometimes mimicking appendicitis, vomiting, constipation, fever, distension and flatulence, headache, backache, anorexia, and weight loss have all been associated with infestation by this parasite.

If the infection is heavy, bloody diarrhea and emaciation may result. Prolapse of the rectum may also occur with heavy worm burdens. Fatalities are rare, even in malnourished and neglected children. Whipworm is more difficult to treat than roundworm, since the worms are embedded in the intestine (Beck and Davies 1976:84-86).

ETHNOBOTANICAL REVIEW

Historic records provide information concerning use of plants by people living in the last few centuries. Some of this information is drawn from accounts documenting Native American uses of plants, while other accounts document Anglo plant use. Ethnographic sources outside the study area have been consulted to permit a more exhaustive review of potential uses for each plant. For this privy study pollen, have been sorted into groups that represent probable weedy plants, probable medicinal plants, and probable foods.

Weedy Plants

Muenscher (1987:3) describes weeds as "those plants that grow where they are not wanted. Whether a plant of a given species is considered a weed depends not only on its characteristics and habitats, but also on its relative position with reference to other plants and man." Weeds are often able to thrive in diverse and adverse circumstances. They are commonly found in disturbed or in places undesirable to other plants. Many weed species produce enormous quantities of seeds, and these seeds are often widely dispersed. Other weed species are capable of reproducing vegetatively. These factors combine to produce a plant that is very successful in competition with other plant species. The word "weed" is assigned here to those plants that exhibit weedy characteristics and were most likely not eaten by the users of this privy.

Apiaceae Daucus-type (Carrot)

The Apiaceae (carrot) family contains about 275 genera, several of which originated in the Mediterranean region. The Apiaceae pollen recovered from this privy most closely resembles Daucus (carrot). Daucus carota (wild carrot, Queen Anne's lace) is the ancestor of the garden carrot. The cultivated varieties have larger and fleshier roots than the wild forms., and are eaten fresh or cooked as vegetables. Daucus carota is a biennial that was introduced from Eurasia. Wild carrot and Queen Anne's lace are now widespread throughout North America and are considered troublesome weeds. Daucus can be found growing wild in old meadows, pastures, dry fields, and waste places (Hedrick 1972:232; Muenscher 1987:325-327; Niering and Olmstead 1979:330).

Low-spine Asteraceae (Includes Ambrosia (Ragweed))

Low-spine Asteraceae includes Ambrosia (ragweed), Iva (sumpweed), and Xanthium (cocklebur). Of these plants, Ambrosia is the most likely in this setting. Ragweed (also wild tansy, hog-weed, bitterweed, mayweed, hay-fever weed, and blackweed) is an annual that grows

in cultivated fields, old meadows, pastures, waste places, and gardens. Ragweed pollen is responsible for many cases of fall hayfever (Muenscher 1987:423-425).

Astragalus (Milkvetch)

Astragalus (milkvetch, locoweed) usually grows at roadsides and in waste places. It is tolerant of dry and calcareous conditions (Fernald 1950:903-912; Muenscher 1987:290).

Brassicaceae (Mustard Family)

Wild mustards may be found in waste places, grain fields, pastures, neglected fields, cultivated areas, in ditches, and along banks of streams. The Brassicaceae pollen recovered from this privy was small and finely reticulated, which is more characteristic of weedy mustards than cultivated members of this family, which are discussed under foods (Martin 1972:64-65; Muenscher 1987:232-236).

Cheno-ams (Pigweed and Amaranth)

Amaranthus (tumbleweed, pigweed, and redroot) often grow in fields and waste places. These annuals produce large quantities of seed that spread readily. Chenopodium (lambsquarters, goosefoot) is a common annual weed in gardens, cultivated fields, and waste places. Seeds are produced in abundance. Some of the Chenopodium may be difficult to pull because of strong roots, but may be hoed off below the ground surface (Muenscher 1987:183-196). Some species of Amaranthus may be planted as flowers because of their colorful heads.

Euphorbia (Spurge)

Euphorbia (spurge) plants are typically considered to be common, poisonous weedy plants. They occur as annual or perennial herbs, and many species have an acrid milky sap that will irritate the skin and eye and mouth membranes. Although most species are considered bothersome weeds, some species have been used in a variety of ways. Spurge has been used to treat snakebites, asthma, and bronchial congestion. The juice of E. marginata (snow-on-the-mountain) has been used in Texas to brand cattle, and other species, such as E. pulcherina (poinsettia), are grown as ornamentals. Euphorbia is found throughout the United States along roadsides, and in fields, meadows, pastures, waste places, gardens and yards (Kirk 1975:32; Muenscher 1987:298-305; Niering and Olmstead 1979).

Ipomoea (Morning Glory)

Ipomoea (morning glory) is generally not a serious weed. The blue, purple, red, pink, or white-flowered vines are commonly seen growing on trellises and fences. Morning glories are found in fields, gardens, and waste places, especially on alluvial soils (Martin 1972:93; Muenscher 1987:352-353).

Liguliflorae (Dandelion, Chicory, etc.)

Members of the Liguliflorae or Chicory tribe of Asteraceae include such plants as dandelion, chicory, prickly lettuce. These plants may be weedy annuals, biennials, or perennials

and grow in a variety of disturbed ground. Lactuca (prickly lettuce, milk thistle) also includes the cultivated lettuce. Most species within the Liguliflorae are weedy, herbaceous plants found in a variety of habitats, some of which include cultivated fields, meadows, waste places, old fields, pastures, gardens, and lawns (Muenscher 1987:422, 480-484).

Plantago (Plantain)

Plantago (plantain) are weedy annuals that reproduce by seed. They are relatively broad-leafed and grow close to the ground. When mixed with grass, they appear to be part of the complex of lawn plants. Even today, plantain are tolerated in many lawns. Their weedy habit made these plants readily available for exploitation as food and medicine. The young leaves of Plantago (plantain, Indian wheat) may be eaten fresh or cooked as potherbs. The seeds have a mucilaginous coat and make a good laxative when soaked in water and eaten raw. Seeds also may be eaten raw, parched, or ground into a meal. Crushed, fresh leaves may be applied to wounds, insect bites, and stings. They also were used to draw out splinters, to cure and prevent infections, and to treat arthritis. The large leaves also make useful natural bandages. Fresh leaves and fresh or dried roots contain proteolytic enzymes and are useful for treating mild infections. The fresh juice may be used for bladder infections and mild stomach ulcers. Native groups are noted to have applied the powdered root to toothaches. Plantago are annual or perennial herbs that are found in varied habitats. Plantago is abundant on disturbed ground and also may be found in plains, hills, fields, waste places, wet meadows, moist ground, and along streams (Angier 1986:235,238; Dorn 1992:213; Harrington 1967:84-86; Kirk 1975:65; Moore 1982:129; Rogers 1980:84).

Polygonum (Knotweed, Smartweed)

Polygonum includes both knotweed and smartweed. These plants contain an acrid juice which causes smarting. Most species are annuals, but a few species are perennials. The peppery leaves of certain species may be eaten raw in salads or cooked like spinach. Polygonum can become troublesome weeds, but are important foods for song birds, gamebirds, and waterfowl. Polygonum species are partial to moist soils in pastures and cultivated fields, along ditches, and on trampled ground about yards, paths, roadsides and waste places. Polygonum aviculare (knotweed) grows on seashores and in salt-marshes, as well as in both alkaline and non-saline soils inland (Fernald 1950:580; Kirk 1975:56; Martin 1972:40-42; Muenscher 1987).

Rumex (Dock, Sorrel)

Rumex (dock, sorrel) are mostly perennials with edible leaves and leaf stems. Some species are native to the United States, while others were introduced from Europe. R. acetosa (sour dock, garden sorrel) is a European dock that is sometimes grown in gardens as a potherb. Native species sometimes become weeds in meadows and pastures, especially on low, wet ground. Rumex plants are widespread in meadows, pastures, fields, lawns, swampy or marshy places, and along roadsides (Martin 1972:38-39; Muenscher 1987:172-180).

Trifolium (Clover)

Many species of Trifolium (clover) have been introduced from Europe, although others are native to North America. T. repens (four-leaf clover) is a familiar weed found in lawns. T. pratense is one of the most common perennial clovers and is planted as a hay and pasture crop. Clovers are high in protein and may be eaten raw, but are best when boiled or soaked in salt water for several hours. A tea may be made by steeping dried flowers in hot water. Clovers are found in a variety of habitats including old fields, roadsides, prairies, dry woods, gardens, and lawns (Kirk 1975:100-101; Martin 1972:67; Niering and Olmstead 1979:540-542; Peterson 1977:56).

Medicines

Artemisia (Wormwood, Mugwort, Absinthe)

Artemisia (wormwood, mugwort, absinthe) may be a perennial or annual weed growing in waste places, gardens, and/or cultivated fields. Artemisia has been used to promote uterine evacuations, for amenorrhoea and hysteria. German physicians have used mugwort for epilepsy. Wormwood has been used as a stomach tonic and an anthelmintic. It aids digestion and is helpful against flatulence. Apparently its virtues also include action against putrification and as an antacid. Wormwood also has been used for such conditions as hypochondriasis, gout, scurvy, calculus, and hepatic and splenic obstructions. Wormwood also has been used as a diuretic, discutient, and an antispasmodic in epilepsy. Wormwood and vinegar have been used to treat wounds, bruises, and sprains, apparently lessening the pain. In addition, brewers are said to have added wormwood fruits, which are very bitter, to their hops to make beer more heady. Absinthe was used to make a stimulating beverage, particularly when combined with other aromatic plants. One such liqueur was named "Wermuth" (preserver of mind). However, drinking absinthe liqueur apparently lead to addiction, which often produced tremblings, numbness, loss of muscular power, delirium, loss of intellect, general paralysis, and sometimes death. Inferior absinthe generally was adulterated with copper, producing a green color. It is likely that the symptoms associated with drinking too much absinthe resulted from copper poisoning. Wormwood also had a reputation of driveing away fleas, moths, and insects. The plant was collected when in seed and scattered on the floor to prevent fleas. It was laid with clothes and furs to keep away moths and insects. Wormwood also was used to counteract the effects of poisoning by hemlock, toadstools, and seadragon bites (Grieve 1981:858-861; Millspaugh 1974:344-350; Muenscher 1987:430-432).

Echium vulgare (viper's bugloss) was naturalized to the United States from Europe. It often grows along roadsides, in dry fields and waste places and may be an obnoxious weed (Fernald 1950:1200). Viper's bugloss has medicinal properties and has been used as a remedy against both poisonous bites and poisonous herbs, such as poison ivy. Historically, the seeds were added to wine to help nursing mothers produce an abundance of milk. The herb is known to stimulate kidney function, soothe inflammatory conditions, and increase expectoration. An infusion of the leaves may produce sweating in fevers and may be good for headaches and nervous conditions. The seeds by themselves may increase lactation in nursing mothers (Potterton 1983:197). In addition, Echium (viper's bugloss), may be cultivated as an ornamental.

Foods

Brassicaceae (Mustard Family)

Cultivated members of the Brassica (mustard) group include broccoli, cauliflower, cabbage, brussels sprouts, collards, kale, kohlrabi, turnips, mustards, rutabagas, and rape. This large genus of about eighty species includes many cultivated and weedy varieties. Many varieties were introduced from Europe and Asia, such as B. nigra and B. oleracea. B. nigra (black mustard) is one of the most widespread mustards in the United States and is the chief source of commercial mustard. Cabbage, brussels sprouts, broccoli, cauliflower, kohlrabi, and kale are all different varieties of B. oleracea. Mustards are annual, winter annual, or biennial herbs with yellow, four-petaled flowers. The young leaves are rich in Vitamins A, B1, B2, and C, and may be boiled as greens. Seeds are used whole as seasonings in pickle recipes or ground to make hot mustard. Some weedy species can cause damage to grain and flax crops (Hedrick 1972:100; Martin 1972:64-65; McGee 1984:196; Muenscher 1987:232-236; Peterson 1977:64).

Ceanothus (New Jersey Tea, Redroot, Wild-lilac)

Ceanothus (New Jersey tea, redroot, or wild-lilac) is a shrub that might have been planted as an ornamental. In addition, the leaves were considered one of best substitutes for tea during the American Revolution (Fernald 1950:993).

Cerealia (Wheat and other Cereal Grains)

Cereal grains include such diverse grains as wheat, rye, barley, and oats. Triticum (wheat) was one of the first cultivated plants, and it was the most important cereal in ancient Mediterranean civilizations. Today, there are over 30,000 varieties of wheat, and it is the most widely-cultivated plant in the world. Early wheat was parched, ground, and made into a gruel. It also was fermented to make a type of beer. The Spanish brought wheat to Mexico in 1529, where it spread as an agricultural crop among the native peoples. Wheat grows best in cool weather, so crops could be grown in winter during the traditionally scarce time of year. Wheat is used for making bread because wheat's storage proteins form a complex called gluten when they are ground up and mixed with water. Gluten makes the dough stick together and gives it the ability to retain gases, resulting in the ability to make raised bread. The three types of modern wheat most commonly grown are based on hardness of the kernel which is a measure of protein content. Durum semolina is the hardest and is used to make pasta products. Hard flour contains little free starch and is used for bread. Soft flour has a high starch content and weak gluten and is used for pastries, biscuits, cookies, and cakes (Heiser 1990:63-74; McGee 1984:234, 285-285). Barley (Hordeum vulgare) was one of the first plants domesticated in the Near East. In addition to being a valuable food for both humans and animals, barley is important in making malt for brewing and distilling. Rye (Secale cereale) and oats (Avena sativa) are more recent domesticates. Rye usually is mixed with wheat to make bread, since it has too little gluten to make a good bread alone. Oats are highly nutritional, containing 15-16 percent protein and approximately 8 percent oils. Oats have been a popular breakfast cereal and also an important animal feed, particularly for horses (Heiser 1990:106-108).

Cocos nucifera (Coconut)

Cocos nucifera (coconut) has many uses in the tropics where almost all parts of the plant are used. However, in the historic United States, evidence for use of coconut usually indicates consumption of the fruit. Edible portions include the "meat" and "coconut water" or "coconut milk". These portions do not contain phytoliths. After harvest, the nuts are cut in half and the meat goughed out to dry. Coconut oil has been used for cooking and also making soap. Coconut meat is rich in protein and carbohydrates, as well as oil. The fibrous outer husk has been used to make rope, mats, rugs, filters, and as stuffing for furniture. Shells have been used for making hookah pipes and the manufacture of novelties. Leaves often are used for thatching or making baskets or hats (Heiser 1990:159-164). Recovery of coconuts in historic sites indicates trade with tropical areas that export them and a system of distribution.

Eugenia (Clove)

Eugenia (clove) is an evergreen tree that is a member of the Myrtaceae family and a native to the Moluccas. The cloves, commonly used as a spice in cooking, are the unexpanded flower buds of this tree. Cloves originally were known throughout the Mediterranean countries. Cloves were imported into Europe during the Middle Ages and were sold at Frankfurt, Germany, around 1450 (Hedrick 1972:259). Cloves may be used in a variety of ways, including baking, seasoning hams, and in the preparation of foods, such as spaghetti and lasagna.

Fragaria (Strawberry)

Fragaria (strawberry) is naturally found in both Eurasia and the Americas, with the American varieties producing larger berries. In the 18th century, a French engineer named Frezier brought some of the large American species back to Europe and began breeding today's modern varieties (McGee 1984:183-184). Wild strawberries are smaller and more flavorful than the domesticated ones. The leaves and berries are rich in Vitamin C, and a leaf tea was used to prevent scurvy and to treat diarrhea. Crushed wild strawberries also were once used to whiten the complexion, remove freckles, and as a treatment for mild sunburn (Ody 1993:60). Wild strawberries are perennial herbs found in meadows, fields, woods, hillsides, and forest edges (Angell 1981:20; Kirk 1975:90). Strawberries are commonly eaten fresh, or cooked in pies, jams, jellies, and preserves.

Malus (Apple)

Malus (apple) species are natives of North America, Europe, and Asia. Most species under cultivation were natives of Europe and Asia that have been naturalized in North America. Cultivated varieties were introduced to the Americas in the 17th century, and new varieties were developed in the 18th and 19th centuries. There are currently about 7,000 varieties of apples, with different sizes, colors, and flavors (McGee 1984:182; Schopmeyer 1974:531-534). Apple seeds contain a small amount of cyanide. Apples are eaten raw, made into cider and sauces, and are used in pies, jams, jellies, and preserves.

Zea mays (Corn, maize)

Zea mays (corn, maize) is a New World cultigen that has become a very important resource. Central American native people first domesticated maize over a thousand years ago. Native Americans grew maize as a staple and introduced it to visiting Europeans. Today, corn is used for food, starch, alcohol, and animal feed. It is still a staple for millions of people in developing nations in Latin America, Africa, and Asia. Maize continues to be grown by native peoples in the Southwest, and it is big business for American farmers in the midwestern corn belt. Corn also is commonly grown in gardens. Fresh, boiled ears of corn are often eaten, and fresh corn kernels are canned and/or frozen. Kernels also are dried and made into cornmeal. Popcorn is a genetic variant whose kernels are heated and popped. Corn also is fermented into bourbon whiskey (Rhoades 1993:92-117).

DISCUSSION

Three privy samples from Old Town Village in Alexandria, Virginia were examined for pollen, phytoliths, and parasites. The uppermost sample (level 3) represents the 1870s and 1880s, the middle sample (level 6) represents use during the 1870s, and the lowest sample (level 8) represents the Civil War period (Table 1). The privy was depicted on the 1865 United States Military Railroad Headquarters map and on the Sanborn Fire Insurance maps through 1891, but not from the 1896 map, indicating that it was torn down between 1891 and 1896.

The pollen record may be divided into pollen that probably represents local vegetation, those that probably represent weeds, pollen that represents food, and unidentified or unidentifiable pollen. Parasite eggs were tabulated outside the pollen count. On the pollen diagram (Figure 1) the parasite frequencies are calculated against the total quantity of pollen observed. Parasite egg concentrations and pollen concentration were calculated for each sample.

Sample 324 represents level 8, the Civil War period. This sample yielded the largest quantity of pollen representing trees. Castanea and Pinus pollen (Table 2) indicate that chestnut and pines were present. Pollen representing shrubs and herbaceous plants included High-spine Asteraceae (members of the composite family), Ceanothus (New Jersey tea), Poaceae (grasses), and Rosaceae (rose family). Of these, Rosaceae pollen may represent ornamental shrubs such as cultivated roses. Weeds that appear to have been present at this time include Apiaceae Daucus-type (wild carrot or Queen Anne's lace), Low-spine Asteraceae (ragweed and others), Astragalus-type (milk vetch), Brassicaceae (mustard family), Cheno-ams, Euphorbia robusta-type (spurge), Liguliflorae (dandelion), and Trifolium pratense (red clover). Plants that may have been used as medicines include Boraginaceae Echium-type (viper's bugloss) and Trifolium pratense (red clover). Foods represented at this level include Cerealia (cereal grains such as wheat), Eugenia (cloves), Fragaria-type (strawberry), and Zea mays (corn).

The phytolith record was dominated by festucoid forms, representing the presence of cool season grasses. At least some of these forms also might derive from cereal grains remains. The most common phytoliths recovered from the cereal grains bran, however, are dendritic elongate forms. These were noted in moderate abundance. Other phytoliths representing

grasses include both chloridoid short cells, representing short grasses that tolerate hot weather and drought, and panicoid forms that represent primarily tall grasses. Trichomes are a form common in the glumes or bran of many grasses and might represent deterioration of seeds of local lawn grasses. A small quantity of Palmae phytoliths suggest the use of coconut (Cocos nucifera). All portions of the coconut plant produce phytoliths, with the exception of the edible coconut "meat" and "milk". Native members of the palm family are noted to grow primarily between North Carolina and Florida, and west to Texas (Blombery and Rodd 1993), eliminating them from consideration for the origin of these phytoliths. Since coconuts are the most probable remain represented, it is likely that coconut shell or the inner, brown rind that adhers to the coconut meat is represented in this sample.

Evidence for parasite infestation included both Ascaris and Trichuris. Parasite eggs were less abundant than pollen, but the concentration value was relatively high at 17,977 Ascaris eggs per ml of sediment and 2927 Trichuris eggs per ml of sediment. This is the second highest concentration of parasite eggs in this privy. Recovery of a relatively large quantity of parasite eggs indicates that parasites were common in the users of this privy. The large quantity of Ascaris eggs and smaller quantity of Trichuris eggs is common in privy deposits and may relate to quantities of eggs produced by these two types of parasites.

Sample 505 represents an occupation between the Civil War and the 1870s. Local vegetation is similar to that of the Civil War era with some exceptions. Pines appear to be less numerous. Shrubs such as Ceanothus (New Jersey tea) appear to be more numerous. Grasses are approximately as abundant as they were during the Civil War era. Members of the rose family were present and might represent native or cultivated plants. The striate Rosaceae pollen was deteriorated and somewhat similar to Prunus and Potentilla. Prunus includes many cultivated fruits trees such as plum and cherry, while Potentilla is an ornamental shrub or herbaceous plant. A small quantity of Toxicodendron-type pollen indicates the presence of poison ivy or poison oak. Weeds appear to have been slightly more abundant, particularly Low-spine Asteraceae (ragweed). Other weeds include Brassicaceae (mustard family), Euphorbia robusta-type (spurge), Plantago (plantain), Polygonum aviculare-type (knotweed), Rumex (dock), and Trifolium pratense (red clover). Plants that may have been used medicinally include Artemisia (wormwood) and Echium (viper's bugloss). Recovery of a small quantity of Artemisia pollen may reflect use of wormwood as a medicinal remedy to treat parasites. Foods represented include Malus-type (apple), Cerealia (cereal grains), Eugenia (cloves), and Fragaria-type (strawberries). An unidentified pollen grain described as being large, echinate, and stephanocolpate was recovered from this sample. This pollen remains identified.

The phytolith record for this level was similar to that of the Civil War in that festucoid, chloridoid, and panicoid grasses all are represented. Evidence for festucoid or cool season grasses increases, while evidence for both chloridoid and panicoid grasses declines. This suggests an increase in grasses that are green in cooler weather and a browner look during the very hot summer days. Dendritic elongate forms are more abundant in this sample, suggesting an increase in the use of cereals. Coconut (Cocos nucifera) phytoliths are present again, suggesting consumption of coconut and discard of the shell in the privy. Recovery of dicot phytoliths indicates use of an unidentified plant. Asteraceae plates represent members of the Asteraceae (sunflower or daisy family), which has been noted to be present in the pollen record.

Parasite eggs were more numerous in this sample than in either of the other two samples examined. Approximately 24,582 Ascaris eggs and 4515 Trichuris eggs per ml of sediment were noted, indicating either a greater rate of parasite infestation during this period of occupation or a greater concentration of fecal matter in this deposit. It should be noted that the pollen concentration also was approximately 50,670 pollen per ml of sediment, which is higher than that observed in the other two samples, suggesting that this level yielded a higher density of fecal matter.

Sample 280 represents level 3 and the 1870s and 1880s. This sample yielded the smallest concentration of pollen and parasite eggs of the three samples examined, suggesting that fecal matter was not as dense. Vegetation appears to be similar to that of the 1870s (level 6) with the exception that Castanea (chestnut) appears to have disappeared from the local landscape. Quercus (oak) appear to be slightly more abundant. Poaceae (grasses) have decreased in quantity and Rosaceae appear to have remained stable. Pollen representing weedy plants includes Brassicaceae, Cheno-ams, Euphorbia robusta-type (spurge), Ipomoea tiliaceae-type (morning glory), Plantago (plantain), Rumex (dock), and Trifolium pratense (red clover). Morning glories might have been either weedy or planted intentionally. The Ipomoea pollen recorded in this sample exhibited rods typical of some weedy morning glories such as Ipomoea tiliaceae, although these rods also are found in Ipomoea batatas (sweet potato). The morphological characteristics of the pollen grain observed in this privy sample are more consistent with Ipomoea tiliaceae than Ipomoea batatas. Identifying this pollen positively to species would necessitate a search of all Ipomoea that grow in the southeastern United States and the study of their pollen; therefore, identification of this pollen is left at the level of a probable weedy morning glory. Plants that might have been used medicinally include Echium-type (viper's bugloss) and Trifolium pratense (red clover). Pollen representing foods in this level include Cerealia (cereal grains) and Fragaria-type (strawberry).

Phytoliths recovered from this sample are more similar in quantity to level 6 than level 8. Generally similar quantities of festucoid, chloridoid, and panicoid grass short cells were recovered, suggesting a similar distribution of grasses. Dendritic elongates were still numerous, indicating that cereal grains and foods made with them, such as bread, were popular foods. Palmae phytoliths were even more abundant in this sample, suggesting an increase in the consumption of coconuts.

Parasite eggs were not as concentrated in this sample as they were in the lower two samples. This appears to be directly related to the concentration of fecal material in the privy deposits. The pollen concentration also was much lower in this privy level. Contrast this with the increase in parasite eggs compared to pollen, which suggests that the rate of parasite infestation might have increased in this level.

SUMMARY AND CONCLUSIONS

Pollen, phytolith, and parasite analyses of three samples from a privy in Old Town Alexandria, Virginia have yielded evidence for local trees, shrubs, possible garden plants, weeds, possible medicine, and food, as well as parasites. Local trees included chestnut, pine, and oak. New Jersey tea (Ceanothus) might have been planted as a shrub. Alternatively, tea made from

leaves of this plant might have been a regular beverage consumed by users of this privy. High-spine Asteraceae pollen might represent cultivated flowers or weedy plants. Poaceae pollen indicates the presence of grasses throughout the record. Rosaceae pollen indicates the presence of members of the rose family, some of which might have been cultivated. Poison ivy or poison oak also was present locally. Members of the mustard family and morning glory also might have been present as cultivated flowers.

Grasses represented were primarily cool season or festucoid grasses. These would be expected to result in relatively green landscaping throughout the spring and fall and perhaps through much of the winter. Relatively few chloridoid and panicoid grass short cells suggest that short grasses and tall grasses were not as abundant, which might have resulted in a browning of the grass population during the summer heat. Plantain, one of the weeds, probably grew interspersed with local grasses and gave the look of greener and more luxurious growth during the summer. Plantain grow close to the ground and don't produce tall, conspicuous flower stalks, unlike many other weeds.

Weedy plants probably included Queen Anne's lace (wild carrot), ragweed or sumpweed, milkvetch, members of the mustard family, goosefoot/pigweed, spurge, morning glory, dandelion/chicory, plantain, knotweed, dock or sorrel, and red clover. Weeds appear to have been quite numerous, contributing to the interpretation of a weedy landscape in the vicinity of this privy.

Plants that might have been used medicinally include wormwood, viper's bugloss, and red clover. It is probable that many more plants were used medicinally, but are not represented in this pollen record.

Foods consumed by users of this privy included cereal grains, cloves, coconuts, strawberries, apples, and maize. No significant differences in distribution of pollen representing foods was noted.

Evidence for parasite infestation included both Ascaris (intestinal roundworm) and Trichuris (whipworm). Given the life cycles of these parasites, it is quite likely that the majority of people living in this neighborhood were infected.

TABLE 1
PROVENIENCE DATA FOR SAMPLES FROM THE PRIVY

Sample No.	Feature No.	Level	Provenience/ Description	Analysis	Pollen Counted	Phytoliths Counted
280	142	3	Privy fill, 1870s/1880s	Pollen Phytolith Parasite	101	202
505	142	6	Privy fill	Pollen Phytolith Parasite	101	203
324	142	8	Privy fill, Civil War period	Pollen Phytolith Parasite	102	202

TABLE 2
POLLEN TYPES OBSERVED IN SAMPLES FROM THE PRIVY

Scientific Name	Common Name
ARBOREAL POLLEN:	
Castanea	Chestnut
Pinus	Pine
Quercus	Oak
NON-ARBOREAL POLLEN:	
High-spine Asteraceae	Includes aster, sunflower, etc.
Ceanothus	New Jersey tea
Poaceae	Grass family
Rosaceae	Rose family
Toxicodendron	Poison ivy
WEEDS:	
Apiaceae	Parsley/carrot family
Low-spine	Includes ragweed, cocklebur, etc.
Astragalus	Milkvetch, rattleweed, locoweed
Brassicaceae	Mustard family
Cheno-am	Includes amaranth and pigweed family
Euphorbia robusta-type	Spurge
Ipomoea tiliacea-type	Morning glory
Liguliflorae	Includes dandelion and chicory
Plantago	Plantain
Polygonum aviculare-type	Knotweed
Rumex	Dock
Trifolium pratense	Red clover
MEDICINES:	
Artemisia	Wormwood
Boraginaceae Echium-type	Viper's bugloss

Table 4 (continued)

FOOD:	
Cerealia	Cereal grains
Eugenia	Clove
Fragaria-type	Strawberry
Zea mays	Maize, corn
OTHER:	
Large Echinate Stephanocolpate	
Unidentified	
Indeterminate	Too badly corroded to identify
PARASITES:	
Ascaris	Intestinal roundworm
Trichuris	Whipworm
SPORES:	
Sporormiella	Dung fungus

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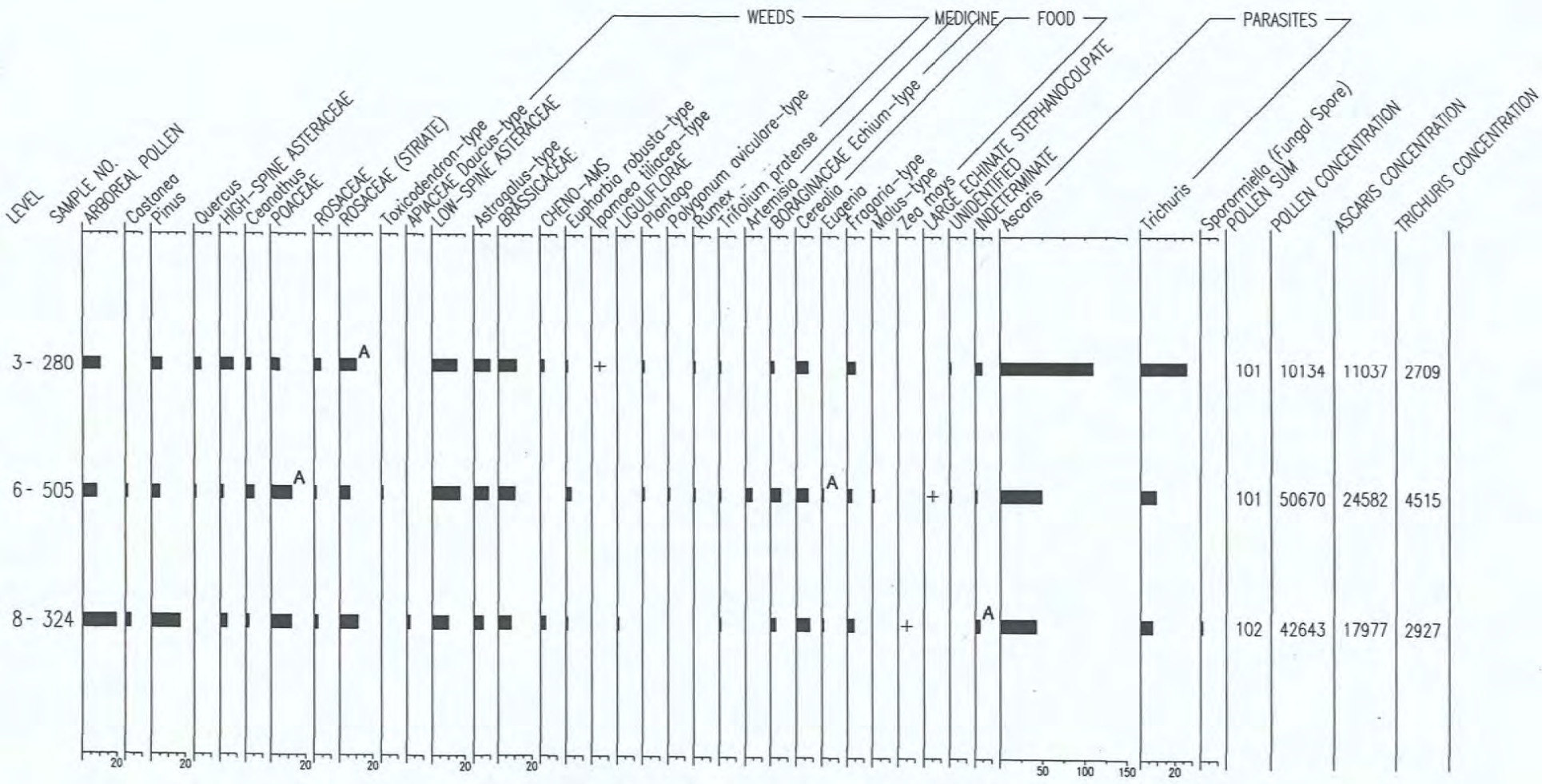

FIGURE 1. POLLEN DIAGRAM FOR PRIVY FEATURE 142, ALEXANDRIA, VA.

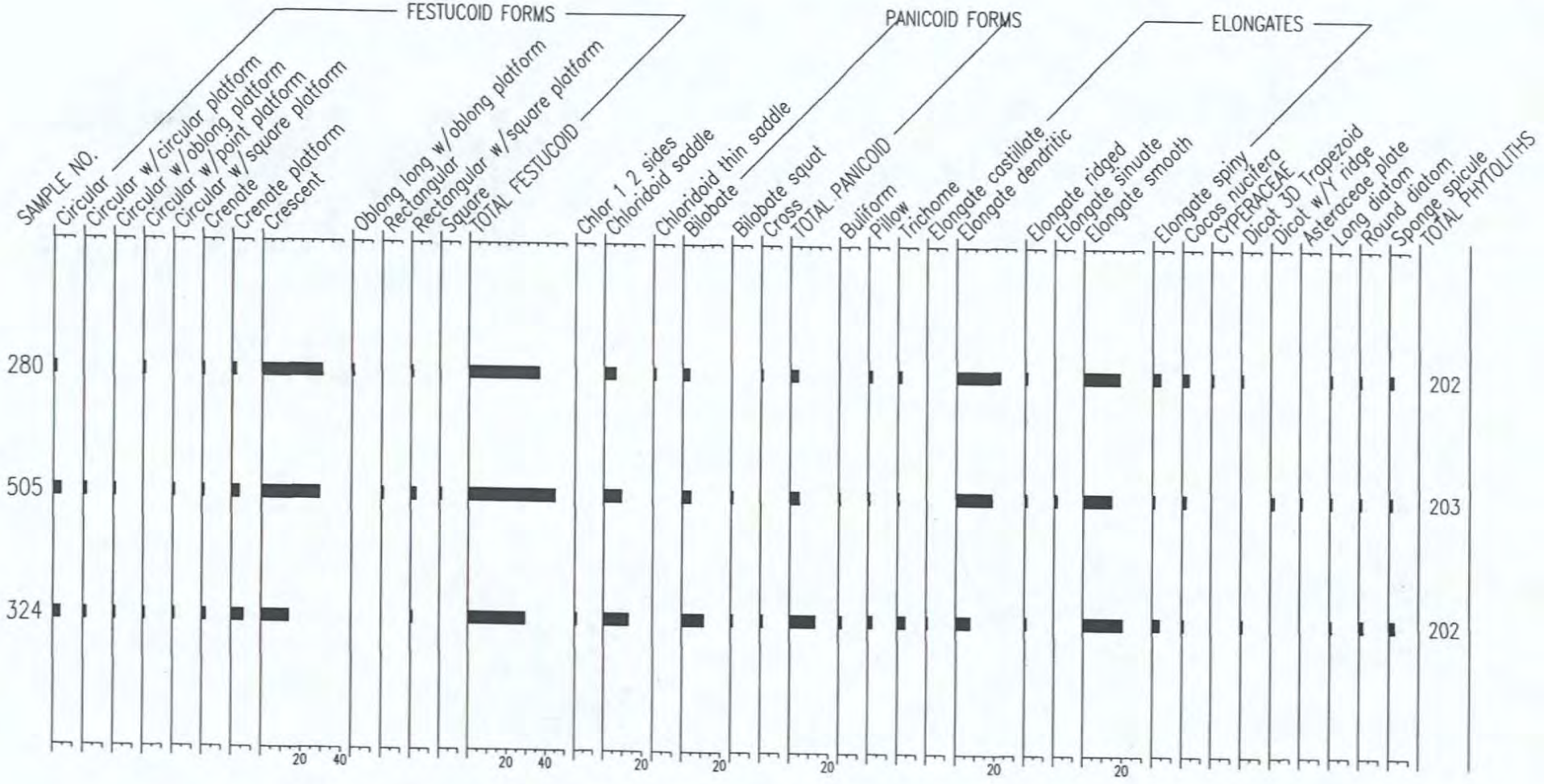

FIGURE 2. PHYTOLITH DIAGRAM FOR PRIVY FEATURE 14, OLD TOWN VILLAGE II

APPENDIX VIII
Analysis of the Faunal Remains from the Old Town Village Site Privy

by

David T. Clark

Analysis Of The Faunal Remains From The Old Town Village Privy (Feature 142)

The large faunal assemblage from the privy consisted of 3,472 bone/shell specimens and weighed 15972.3 grams (Tables 1-6). The collection was analyzed in the Archaeology Laboratory, Department of Anthropology, The Catholic University of America for Thunderbird Research Associates.

The assemblage was received in clean condition and was initially sorted into diagnostic (identifiable) and non-diagnostic (unidentifiable) groups based on observable anatomical characteristics. Typical diagnostic features include articulation joints, ligament/tendon attachment centers, and distinct shape. Specimens were then classified taxonomically according to species, genus, family or class. Occasionally, identifications were aided by reference to a skeletal comparative collection maintained the archaeology laboratory. The results were tabulated by provenience and recorded in Tables 1 through 6. Total assemblage distributions are shown in Table 1. Tables 2-6 exhibit species remains per privy level.

The tables list species by scientific name, common name, NISP (number of individual specimens), MNI (minimum number of individuals), and weight in grams. If species were indeterminable, the genus is followed by the "sp" or "spp" designation, referring to one or several unknown species, respectively. Occasionally, family and class taxons are used when a genus/species cannot be determined. Examples include *Colubridae* referring to the nonpoisonous snake family and *Aves spp.*, the designation for several indeterminable bird species. Some unidentifiable remains were given a size/class distinction such as large mammal spp,

referring to fragments from several pig/cow size species and small mammal spp. Page 2indicating rat/squirrel size remains.

The physical condition of the assemblage was also recorded. This data included observation of human (butchering, burning etc.) and nonhuman (weathering, gnawing, discoloration etc.) alterations/modifications. Maturation data were also compiled based on tooth eruption and wear patters and epiphyseal fusion rates.

Assemblage Discussion

Since 96 percent of the privy remains were diagnostic, identifiable specimens, it was not surprising that they were in excellent physical condition. Delicate skeletal elements from fish, rats, rabbits and chickens were perfectly preserved. Thin boned chicken skulls, rare in most assemblages were nearly complete. Small, thin fish cranial elements, rat/rabbit limb bones, cat/dog toe nails and eggshells were recorded throughout the privy strata. Such preservation is often typical of sealed, protected deposits associated with privies, cisterns, wells or other buried features where the destructive effects of weathering and oxygen are limited. Many bones specimens were dark-stained with porous, cracked surfaces usually caused by deteriorating cycles of water saturation and drying. Many elements were coated or encrusted with thin layers of tan-white carbonaceous material. This is most likely the residue from repeated applications of "lime" used periodically to disinfect or sanitize the privy. Prolonged contact with decomposing iron artifacts caused discoloration and surface damage on several bone/shell fragments. Interestingly, greenish stains/discolorations from contact with decomposing copper/brass objects were not observed.

Evidence of scavenged bone was minimal and suggested, not surprisingly,

that privy deposits were not exposed for long periods without, at least, partial burial. Surely the stench from a combination of human waste, discarded refuse and dead animals (scavengers) would have been overwhelming, if not unbearable! Both rat and carnivore gnaw marks were recorded. Dog and cat scavenging was observed in most levels, but was uncommon. Damage was usually centered around marrow-rich joint ends of limb bones and vertebrae. Rat gnawing was observed on a wider variety of elements including limb-bone joint ends and shafts and vertebrae where marrow or gristle is common. On the one hand, the paucity of gnawed remains was surprising given the number of likely scavenger species - cats, rats, dogs, and raccoons. But on the other hand, it is possible that a deadly privy chemical matrix and periodic burial of the privy contents limited scavenger activities even though remains of scavenger species were common in all levels (see discussion below).

Curiously, a number of broken and diseased bone elements were recorded. Most of these were from cats and rats but one was a turkey leg. These could be linked to the purchase of inexpensive meats (turkey) or the result of species exposed to the ever-present dangers of the privy environment.

Evidence of human bone modification was varied and common. Sawed, axed, and cut specimens were observed in every level and were mostly pig and cow remains. Other common species (chicken) exhibited no butcher marks. Many elements exhibited saw and axe chop marks around joint surfaces. Usually elements were sawed/axed nearly through and then snapped off leaving a small but noticeable projection or ridge of bone on one edge surface. A number of bones were symmetrically sawed and likely represented bulk meats acquired locally from commercial butchers. In addition, the absence of limb extremities and cranial remains suggests little, if any, on site butchering. Less common were knife-like cut

marks, usually around joints consisting of thin, narrow lines.

Very few specimens were burnt suggesting meat was prepared by boiling (soup), stewing or various curing processes. Exceptions were a few fish vertebrae which could have been accidental.

The privy assemblage consisted of remains from five levels: 4-8. Level 7 yielded the largest group with 1270 specimens and Level 6 yielded the smallest group with 406 specimens (Tables 2-6). The privy assemblage represented the remains of food refuse, scavengers and natural inhabitants or accidental occurrences such as snakes and turtles. The entire assemblage is discussed below, by level and species.

Level 4

This level included 473 specimens, weighing 2585.6 grams and representing eleven species (Table 2). The remains consisted of food refuse, scavengers and natural wild inhabitants; most were dark stained from liquid privy deposits.

Large Mammals

Large mammals remains were common. Cow elements (4) included poor quality or inexpensive meats and the lack of initial butchering remains (limb extremities, skull, teeth) suggest they were acquired from local butchers. Included was a lower foreleg axed across the lower joint, an atlas (cervical) vertebrae symmetrically sawed in half, a vertebra fragment and a sawed rib shaft with both ends snapped off. This represents shank, split-back, rib meat used in soups and stews. One horn fragment was identified. Limited maturation data from bone fusion patterns indicated one individual was less than fourteen months old at death. Pig remains (10) included foreleg and shoulder, rib, backbone, and hind-leg. Most were chopped/snapped and cut. All represent inexpensive meats such as picnic shoulder,

hock, rib and fatback. One exception was a symmetrically sawed, inch thick, upper hind-leg (femur) section from a ham-butt slice/steak. Considered a more expensive "specialty cut" such meats were more common after the civil war. This and other meats were likely acquired from local butchers since evidence of on-site butchering (limb extremities, skull, teeth) was lacking.

All individuals were juveniles based on bone fusion data, and two were less than a year old at death.

Two elements exhibited carnivore gnaw marks on the joint ends and canine puncture marks matched those of dogs, whose remains were common in this level (see below).

Other Mammals

Dog (10), cat (20), domestic rat (16) and rabbit remains were also identified in this level (Table 2). Dogs and cats were likely scavengers and their remains included nearly whole skeletons of adults juveniles and fetal individuals. This suggests breeding populations lived in the area and individuals either died or were discarded in the privy. Rat remains were also common including both adults and juvenile skeletons. This species represents another major scavenger at the site even though rodent gnawed bone was scarce. Rats were also likely prey of cats and dogs. Overall, a host of scavengers were attracted to the privy deposit of food refuse and garbage. But the combination of human waste and decomposing refuse and scavenger carcasses must have been overwhelming at times! High numbers of scavenger remains are probably linked to deaths of individuals feeding on the toxic infected deposits and natural deaths within breeding populations living near the privy.

Several cottontail rabbit (4) remains were identified. A common wild species

in the area today, cottontails could have been accidentally caught and eaten, but their small numbers and the absence of butcher marks suggest they are probably the remains of cat or dog prey.

Chickens

Chicken remains (216) dominated the assemblage from level 4 (Table 2) and consisted of bone (96) and egg shell fragments (170). Apparently a popular food, chicken remains were recorded in large numbers at all levels. The collection included many unbroken elements representing whole skeletons, from skull to toe. Thin, delicate cranial and pelvic bones were preserved. Rapid burial and carbonate coating/incrustation from periodic use of lime as a disinfectant probably contributed to the rate of preservation.

Juvenile remains outnumbered those of adults and represented both hens and roosters. A number of fetal remains suggest chickens were raised near the site.

Evidence of butchering and burning was absent suggesting chickens were boiled whole for use in soup and stews etc. All evidence indicates chickens (eggs) were a popular, accessible, low cost food and some were likely raised in the area.

Snake

Other remains included a single-non poisonous snake vertebra representing an accidental death of a wild inhabitant or the prey remains from cats or dogs.

Aquatic Species

Fish remains and oyster shells were also identified (Table 2). The abundance of both reflected their importance as supplements to the local diet. Most prevalent were the remains of shad (78) and catfish (36), with smaller numbers of yellow perch (Table 2). Measurements and comparison of vertebrae and their elements with the lab's skeletal collections showed all fish were small sized, mostly less than

a pound each. Delicate, unburnt cranial remains accounted for nearly all fish materials, and the scarcity of fish vertebrae, rib, and scale elements indicated fish were initially cleaned and processed elsewhere at the site. Cranial elements probably represented "heads" used in soups or stews that were discarded in the privy. "Fish-head" soup is still a popular, inexpensive local food. Overall, inexpensive, locally available fish were a common, popular food sources. Interestingly enough, element and species distribution were consistent in all privy levels.

Oyster shells were also common (Table 2). Oyster shells were analyzed to determine shell bed characteristics (Kent, 84). Shell size indicates general health of the harvested beds. Here shells were either medium (5-10 cm) of large (+10 cm) size, indicative of a healthy bed; those not over-hunted or over-harvested. Attachment scars on the outer surface of adult shells from young oyster "spat," reflect oyster bed densities; the more "spat" scars, the denser the beds. About 50 percent of the shells exhibited "spat"scars, typical of sense beds. This suggests oysters were taken from multiple beds. Oysters are also prone to parasites which bore holes in their shells. The parasites are sensitive to water salinity and so, it is possible to identify location of collection beds. However, only twenty of the fifty-four shells exhibited bore holes indicating again that oysters were collected from several bed sites with varying salinity levels. Growth ribs on the outer shell surface increase with exposure to ultraviolet light in shallow water habitats. Thirty-four of the 54 shells were ribbed suggestion specimens were procured from both shallow and deeper water beds. Also, oyster shells were generally well preserved, exhibiting little decomposition or leaching and did not, apparently contribute much carbonaceous material to the privy fill. This is another indication that carbonate

incrustation seen on many bones were probably the result of "lime" used as a disinfectant in the privy. Overall, the evidence shows that oysters were a common supplemental food source collected from multiple healthy beds.

Level 5

Level 5 yielded 664 bone/shell elements weighing 2241.0 grams, representing sixteen species (Table 3). The assemblage included food refuse, scavenger remains, and elements from wild inhabitants (Table 3) Dark staining from the privy fill covered most bone surfaces, and burnt specimens were rare.

Large Mammals

Large domestic mammal remains were common and included cow (9), pig (7), sheep (2) and mule (1). Cow remains consisted of foot, rib, back, and lower leg (femur) bones. They represented poor quality, inexpensive meats, such as rump, hind shanks, knuckle and short ribs. Many cuts were from bulk meats that were cut/axed into smaller portions and best used in stews and soups. Several elements were symmetrically sawed which is typical of commercial butchering, especially after the 1850's. Backbone, foot and hind leg elements were delicately sawed into roasts later. Not surprisingly there was little evidence of on-site butchering. One specimen, a symmetrically sawed, thin, leg bone section, represented a "round steak" specialty cut. Such quality meats were rarely recorded in the privy and only occurred in the upper two levels (4-5) representing a later time period.

Cow maturation data from bone fusion patterns suggested two individuals were less than 14 months old at death.

Pig remains included fore and hind leg fragments, representing lower shank, hock and food meats - all poor quality, inexpensive bulk meats. One specimen, a

foreleg fragment, was chopped at one end (hock), but this was the only butchering evidence recorded. All pig remains were associated with immature individuals and one was less than a year old at death.

Rodent gnawed bone was rare, but one pig specimen and one cow specimen exhibited rat gnaw marks centered around the joint ends of the bone.

Overall, cow and big meats were an important source of food at the site, characterized mostly by inexpensive bulk meat portions good for soups or stews.

The entire privy assemblage included only two sheep bones (Table 3). Both were foreleg fragments representing inexpensive shoulder cuts. One fragment was axed where the arm and shank were initially separated during butchering.

A single hoof bone (toe) from a young mule was identified in this level but no other elements were recorded. Mules were common in the Alexandria area, used mainly for transport and other labor.

Other Mammals

Other mammals identified were scavengers - cats, dogs and rats and the cottontail rabbit (Table 3). Many elements were coated with calcium carbonate, probably from consistent use of "lime" as a disinfectant in the privy fill. Many specimens exhibited a dark discoloration from constant contact with the privy fill. Cat and dog bones were common and included adult, juvenile, and fetal remains. This is a good indication that the breeding population was living in the site area. Apparently, individuals either died while scavenging or were discarded in the privy. Remains of rat scavengers were also recorded, and represented skeletons of adults and juveniles (Table 3). They could have been the prey of dogs and cats. As in other levels, all scavengers were attracted to the privy refuse which undoubtedly accounts for their large population near the site.

Rabbit remains (40) were common compared to the previous level (Table 3). Although butcher marks were absent, the number of cottontail remains suggested rabbits were a supplemental food source and they are still common in the area today.

Birds

Chicken and Geese account for all identified bird remains from this level (Table 3) All specimens were stained dark-brown and encrusted with calcium carbonate from contact with the privy fill. The large number of chicken elements (214), representing nearly complete skeletons including delicate cranial elements, were mostly from juvenile individuals. Remains of hens and roosters were recorded. Unlike the previous level, egg shell fragments were scarce. Despite the large collection of bones, feathers were not observed and suggest that chickens were processed/cleaned elsewhere at the site. The absence butchered or burnt bones suggest chickens were prepared by boiling or used in soups and stews. The evidence clearly shows that chickens were a major, low cost, food source they were probably raised in the site area.

Goose remains (11) consisted of mostly leg and wing elements and probably represented the domestic species. Similar to chicken remains, all elements were stained dark-brown and encrusted with carbonate from contact with the privy fill. All specimens were from juveniles and evidence of butchering was absent. Like chickens, geese were probably cooked whole and/or used in soups and stews. Feathers were not recorded, suggesting geese were initially processed/cleaned elsewhere at the site. The evidence implies that geese were an occasional food source; supplemental to their diet.

Snake

A single non-poisonous snake vertebrae was identified (Table 3) This individual either accidentally wandered in and died or was perhaps rat/dog food refuse.

Aquatic Species

This group included mostly fish and oysters (Table 3). Sheer numbers alone suggest they were important supplements to the diet. Shad (132) and catfish (43) dominated the assemblage. Yellow perch were less common (17). Element size indicated fish were small-size, most weighing less than a pound. Delicate cranial remains were unburnt and accounted for most of the elements. The absence of other skeletal elements (fin, vertebrae, scales, ribs) suggest fish were initially prepared/cleaned in a different area of the site. Undoubtedly, fish were an important and inexpensive food source, especially shad, catfish, and perch, which are easily caught and very common in the Potomac River drainage. The prevalence of cranial remains suggests "fish heads" were probably very important in bulk foods such as soup and stews. It is possible that fillets were eaten, but they are not associated directly with skeletal elements.

Oysters (50) were another important food item especially since they were recorded in all levels (Tables 1 & 3). Evidence shows they were collected from healthy beds in shallow water. About half the specimens exhibited parasite bore holes and "spats," or attachment scars from young oysters. Both indicate oysters were collected from diverse shell beds with varying salinity and densities. Shells were well preserved, exhibiting little leaching or decomposition. This suggests oyster shells were unlikely contributors to the carbonate coating seen on many bone specimens.

Other shell species included hard clam (1), ribbed mussel (3) and blue crab

(1). The hard or Quahog clam is a common food species in the Chesapeake, but was rare at the site. The ribbed mussel is a very small species that commonly attaches to oyster shells and is not considered a food source. The blue crab is a very popular species, but only one claw represented in the assemblage.

Level 6

This collection consisted of 406 bone and shell specimens weighing 2673.5 grams and representing thirteen species (Table 4). The assemblage included food refuse and scavenger remains. Most specimens exhibited a dark brown discoloration and many were coated with calcium carbonate - all resulting from contact with the privy fill. It appears that bones from the deeper levels are more heavily encrusted suggesting carbonates are more concentrated in those deposits. Several fragments were stained and deteriorated from contact with rusting iron artifacts. Specimens were unburnt except for a few unidentifiable fish vertebrae.

Large Mammals

Only cow (4) and pig (20) remains were identified in this group. They represented poor-quality, inexpensive, meats best suited for soups and stews. Cow elements consisted of backbone and toes. A lower vertebra (lumbar) was symmetrically sawed across the spine, which is typical of commercial cuts where the back is divided into inexpensive bulk portions after expensive meats (loin) have been removed. Other elements were foot bones, and one piece was symmetrically sawed, yet another inexpensive "stew-meat" portion.

Pig remains were common and exhibited gnaw marks from rats and dogs. Rat gnawing was centered around the cut ends of bones. Chewed bone surfaces with large canine punctures were typical of dog scavenging. Again, the evidence suggests overwhelmingly that privy refuse was not buried immediately and this

accounts for the large scavenger community around the site. Pig elements were separated into two groups: juvenile and "suckling pig." Juvenile remains included foreleg, hip and hind-leg fragments., representing inexpensive shoulder hock, rump, spare ribs, and shank meats. Also of special interest were two knee elements associated with poor-quality meats, especially good for soups, stews, and flavorings. Nearly all specimens were purchased commercially since evidence of "home" butchering (limb extremities, teeth, cranial elements) was lacking. However, saw and axe marks were not symmetrical, especially compared to cow refuse. Perhaps, pig meats were purchased either from different local butchers or meats were acquired in large bulk portions (fore-hind quarters) and hand sawed/axed into smaller cuts at the site.

Bone fusion and tooth eruption data suggest that one pig was less than a year old at death. All other remains (8) were from fetal or "suckling pigs," individuals less than six months old at death. Elements included spine and tail vertebrae, pelvis, foot and ankle, and foreleg. Low-cost fetal pigs were most likely purchased locally and prepared by boiling or stewing.

Other Mammals

Most other mammal remains (dog, cat, raccoon, rat) represented scavengers with the possible exception of the cottontail rabbit (7). Common in the area today, the cottontail has been used as a food species but their smaller numbers and absence of any butchering marks implies the remains are the result of predators (cats and dogs).

As in other levels, dog, cat, and rat remains were common. Most were from juveniles but they also represented fetal cats, suggesting a breeding population was common near the privy. The prevalence of fetal remains may be linked to the

consumption of contaminated privy refuse. Dog elements were few and represented small terrier-sized individuals. Also uncommon were rat remains, but both rat and dog/gnawed bones were recorded, indicating an open, accessible privy deposit.

Raccoon remains (9) were recorded in the lower three privy levels (Table 4). Although occasionally eaten, raccoons are notorious scavengers and evidence of butchered elements was not recorded. Still common in the area today, raccoons were most likely occasional scavengers at the privy. It is obvious that the privy represented an open refuse deposit, attracting and supporting a large contingent of scavenger species.

Aves (Birds)

Chicken and goose were recorded, but as seen in other levels, chicken remains (104) were most prevalent (Table 4). They represented entire skeletons of both adults and juveniles; hens and roosters. Specimens were unburnt and butchering evidence was rare - only one leg bone was cut. This suggests chickens were cooked whole and perhaps used in stews and soups. The absence of feathers may indicate that they were initially processed elsewhere at the site. Regardless, they represented an important, locally available, inexpensive food species. A few eggshells were also recorded; since they occur in all levels, eggs constitute another available food source at the site.

Although less common than chickens, goose remains (8) are recorded in most levels. Here, leg, wing, breast, and cranial elements were identified. Evidence of butchering was almost absent. Like chickens, geese were probably cooked whole and represent an inexpensive secondary food source.

Aquatic Animals

Similar to other levels, fish and oyster remains were common food refuse in

the privy (Table 4). Interestingly enough, the same fish species were identified, including shad (68), catfish (10) and yellow perch (11). All remains were unburnt, uncut, and included mostly cranial elements, This suggests that "fish heads" were commonly used in food preparations such as soups and stews. The lack of the other elements (fins, vertebrae, scales, ribs) implies that fish were initially processed/cleaned elsewhere. Analysis and measurements of fish elements indicated that most individuals were small, weighing less than a pound each. Possibly, they were purchased from local markets where the smaller fish are often less expensive and of consistent size.

Oyster (52) remains were common and represent another important secondary food resource. Shell data indicates that oysters collected from multiple, healthy beds of varying densities and salinities. Also, shells exhibited little leaching or decomposition and contributed minimal calcium deposits to the privy fill.

Level 7

This was the largest assemblage from the privy consisting of 1270 bone/shell specimens weighing 6044.0 grams and representing fourteen species (Tables 1 & 5). The species distribution was nearly identical to that of other levels. Food refuse and scavengers remains dominated the collection. Most specimens were stained dark-brown and many were encrusted with calcium carbonate from prolonged exposure to the privy fill. Carbonate probably accumulated from periodic use of chemical lime as a privy disinfectant.

The evidence shows that cow, pig, and chicken were major food species and goose, fish, and oysters were important secondary resources. Scavenger remains accounted for the rest of the assemblage including dog, cat, rat, raccoon.

Large Mammals

Cow remains (32) were numerous and many were symmetrically sawed, which is characteristic of commercial butchering (Table 5). Plus, evidnece of home (on-site) butchering (limb extremities, skull, teeth) was absent. Large cut or sawed bone pieces were from shoulder, fore and hind-leg, pelvis, ribs, tail, rump and backbone. These represented inexpensive bulk roast cuts, including "pot roast" (chuck) fore and hind shank, rump/"ox tail" and short rib ("boiling plate"). Butchering patterns were very systematic and most remains were neatly sawed with the precision of commercial butchers. As seen elsewhere, vertebrae were neatly sawed lengthwise and the crosswise to divide the spine into inexpensive stewing meats after expensive portions (sirloin etc.) had been removed. Rump and tail elements were also sawed lengthwise representing "ox tail" soup or stew meat. A sawed half-pelvis represented a large bulk rump roast and sawed/snapped ribs represented "short plate" meats for boiling. All meats were inexpensive, low-quality cuts used in soups and stews or cooked as large roasts.

Cow maturation data was based on rates of bone fusion. The data varied and one individual was less than seven months old at death, another was 10 months old and a third was more than a year old at death.

Several large pieces were coated with carbonate from contact with privy fill. Rust discoloration was observed on several fragments, the resulting of contact with iron artifacts. Only two rat gnawed elements were recorded which was surprising, considering the large number of rat remains identified.

Overall, cow bones included symmetrically sawed, inexpensive meats. This type of systematic meat processing is typical of commercial butchering and implies that all meats were purchased from local butchers.

Pig bones (37) consisted of a variety of inexpensive bulk meats from the for

and hind-leg, ribs, vertebrae and jaws (Table 5). They are all associated with hock, shoulder butt roast, ham-butt, back and jowl meats. Butchering data varied with specimens, symmetrically sawed, cut/axed and snapped, and sawed and snapped. This implies meats were purchased from several different local butchers. Vertebrae were slit neatly, lengthwise, the result of initially butchering where the body is divided into halves which are then subdivided. Neck vertebrase were split representing inexpensive meats for stewing or soup seasoning. Limb bones were represented by axed/sawed shafts or joint elements - mostly inexpensive bulk meats. Two mandible fragments were split at the ramus and along the chin from the processing of jowl portions. Overall, pig remains were axed and sawed and were mostly inexpensive, bulk meats representing roasts used in stews, soups or for seasoning.

All specimens were stained dark-brown and many were encrusted with carbonate from contact with the privy fill. Evidence of scavenging by rats or carnivores was absent.

Maturation data from bone fusion patterns indicated these hogs were less than a year old at death.

Other Mammals

All other mammal bones, excluding rabbit, were scavenger including dog, cat, rat and raccoon. (Table 5) Most specimens were encrusted with carbonate and stained dark-brown from contact with the privy fill chemicals. Dog remains were very common (32) from both juveniles and adults and were representative of whole skeletons excluding skulls. The remains represented small, terrier-sized individuals.

Cat remains were ubiquitous (95) and representative of whole skeletons form adults, juveniles and fetal individuals. The high numbers of remains may reflect a

high death rate from consumption of contaminated privy refuse. A healed fracture was observed on one metatarsal bone indicating that injured cats were part of the population.

Similarly, the rat assemblage was large (110) and represented both adults and juveniles (Table 5). Elements were representative of whole skeletons, from skull to toe. A number of elements (cow, pig) exhibited evidence of rat gnawing mostly around joints or muscle attachment centers.

The remains of another likely scavenger, the raccoon, were also recorded (29) and represented mostly adults (Table 5).

Over all the evidnece illustrates that on open, accessible privy refuse deposit attracted and supported a large and diverse population of scavengers. Cats and perhaps dogs also preyed upon rats. Also the high number if remains may reflect increased death rates due to scavengers consumption of contaminated refuse.

Rabbit remains were few (6) and exhibited no evidence of butchering (Table 5). Common in the area today, the bone are probably linked to predator activities (cats, dogs, raccoons).

Aves (birds)

Bird species included chicken, goose and turkey (Table 5). By far, chicken remains (bones, shell) dominated the collection (406) and were representative of whole skeletons and included adults, juveniles and fetal elemets. This evidence, plus numerous eggshells (114) suggests breeding populations in the area. Bones were unburnt and evidnece of butchering we completely absent. Indicating chickens were prepared whole for boiling, soups and/or stews. Feathers were not encountered, implying that birds were initially processed elsewhere. Also of interest was a diseased foot-bone, either an incidental occurrence or the result of living near

the unhealthy environment around the privy. Overall, the evidnece shows that chicken was a major food species and some may have been raised in the site area.

Goose (7) and turkey (4) remains were also recorded and undoubtedly these species constituted secondary food sources. Geese were common in other levels, but this is the only record of turkey from the site. The remains were unburnt and without butchering marks. Geese and turkey were apparently acquired locally and prepared by boiling. One turkey leg bone exhibited a healed fracture which may be incidental or the result of living near the unhealthy environment adjacent to the privy.

Aquatic Animals

A in other levels, fish and oyster remains were prevalent, but this was the largest assemblage from the site. Similar species were identified including shad, catfish, and yellow perch (Table 5). Elements were unburnt, uncut and most were cranial, although a few scales and vertebrae were recorded. Shad elements, mostly cranial (323), dominated this group and represented on important food species. Catfish and perch bone were much less common. All species are locally available for much of the year and are popular food fish. The evidence suggests, overwhelmingly, that fish heads were a major component of prepared foods, such as "fish head" soups and stews. The scarcity of other skeletal elements suggest fish were initially processed elsewhere. Perhaps "heads," representing cheaper food portions, were purchased in bulk from local markets. Also, analysis of elements showed a great consistency of fish size; most weighed a pound or less. This may also demonstrate that fish were purchased from local markets, where small fish are available in bulk and are inexpensive.

Although the total assemblage was huge, the number of oyster shells was

relatively small (61), implying that this species was an occasional supplement to the diet (Table 5). Shell evidence demonstrates that oysters were collected from several healthy beds in both shallow and deep waters with varying densities and salinities. Shells exhibited minimal evidence of leaching or decomposition and this probably contributed little calcium to the privy fill.

Level 8

The lowest level in the privy yielded 615 bone/shell specimens, weighing 2436.4 grams and representing twelve species (Tables 1&5). Identified species were similar to other levels except for turtle (2) and sucker (1) (Table 5). The assemblage consisted of mostly food refuse and scavenger remains.

Most specimens were stained dark-brown and coated with carbonate from contact with the privy fill and suggest that lime was used in the earliest levels of the privy.

Large Mammals

Cow (9) and pig (26) remains accounted for nearly all identifiable large mammal materials and represented two of the most important food species in the assemblage (Table 6). Cow bones included mostly vertebrae but also a hind-leg and rib fragment. Vertebrae were split (axed) and sawed into bulk meats. First, the back is split lengthwise during initial butchering, separating the carcass in half. Then, after limb-quarters, back and side meats are removed, the leftover backbone is often cut (sawed) crosswise into several bulk section of inexpensive soup or stew meats. A hind-leg was sawed on both ends representing a poor-quality hind-shank cut. Unlike the upper levels, elements here were axed/chopped and some symmetrically sawed while others appear to be hand sawed. This indicates meats were purchased locally from different butchers. Also it is possible that remains

from this level are associated with earlier time periods when systematic butchering a d symmetrical sawing of cows was uncommon in the area.

Maturation data from tooth eruption and bone fusion patterns indicated that on cow was less that 8 months old and another was between 14 and 18 months old at death.

Pig materials included cranial fragments, fore-leg, rib, and vertebrae fragments. Cranial remains consisted of teeth and jaws. The jaws were chopped and broken in two from the processing of jowl meats. Limb and vertebrae represented poor-quality hock, neck and back meats. Many of these were sawed and split. The evidence shows that vertebrae were initially split lengthwise and then axed/sawed crosswise during processing of low-cost bulk back meats. Fore-leg elements were also systematically axed and sawed. Overall, pig meats consisted of inexpensive cuts. The variety of systematically sawed, axed and cut bone suggested meats were purchased from local butchers, especially since evidence of home (on-site) butchering (limb extremities, skull fragments) was absent. Maturation data from tooth eruption/wear and bone fusion patterns indicated that several pigs were less than a year old at death.

Other Mammals

This group included scavengers - dog, cat, rat and raccoon (Table 6). Most specimens were discolored and many were coated with carbonate from contact with privy fill. Dog remains (26) were representative of whole skeletons form adults, juveniles and fetal individuals. Small sized dogs were represented. As usual, cat bones (72) dominated the scavenger assemblage (Table 6).

Conclusions

The privy assemblage (F-142) from the Old Town village site consisted of 3,472 bone/shell elements, weighed 15972.4g and represented eighteen (18) species (Table 1). The collection was excavated from a site at Duke and Henry streets in Alexandria, Virginia.

The assemblage was in excellent physical condition, as 93% of the remains were diagnostic and identified at the genus/species level. The material consisted mostly of discarded food refuse, and scavenger remains. A few elements from local wild species (snake, rabbit, turtle) were also recorded.

Many specimens exhibited dark-brown discoloration and were encrusted or coated with carbonated from prolonged contact with the privy fill. The discoloration of bone is common when they are exposed to chemicals produced from human waste, decomposing food refuse and scavenger remains, chemical disinfectant, etc. Carbonate encrusted bone resulted from the prolonged use of "lime" as a disinfectant. The most heavily encrusted elements were recorded in the lowest levels, since they were exposed to the privy fill for the longest time.

Assemblages from five levels (4-8) were analyzed and showed little variation in species or element distribution. Remains of domestic species were common, especially, cow, pig, and chicken (Table 1). They represented major food species. Important secondary food sources were goose, fish, and oysters. The most popular fish was shad (?), but catfish and yellow perch were also recorded in each level. Food species variation between levels was insignificant and included a very few elements from animals such as turkey (4), hard clam (2) and blue crab (1) (Tables 1, 3, 5)

Scavenger remains were exceedingly common (Tables 1-6). Dog, cat, and rat specimens were recorded in all levels, but raccoon was identified only in the bottom

three levels - 6, 7,8(Tables 4, 5, 6). Scavenger remains were representative of partial skeletons from adults, juveniles and fetal individuals. This evidence clearly shows that the privy deposit attracted and supported a large breeding population of scavengers. Furthermore, the high number of scavenger remains is probably linked to a high death rate from contact with consumption of contaminated refuse in the privy fill.

Cow an pig were the two most important domestic mammal food species. Both are represented in each level but their remains are limited to specific inexpensive poorer-quality, bulk meats used as roasts, soups, stews or seasonings. Cow remains were mostly large bone pieces from fore/hind-leg, rib, backbone, and foot, representing knuckle, shank, rump/"ox tail," "short plate"(rib), and back meats. Most elements were symmetrically sawed acquired from local butchers. Cow elements were usually neatly sawed but rarely cut or axed. The exception was the assemblage from the lowest privy level (8). Here, many pieces were axed, cut.

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Table 1.
Distribution Total Of Faunal Remains From The Feature 142 Privy, Levels 4-8, Old Town Village Site.

Scientific Name	Common Name	N.I.S.P	M.N.I	Weight
Bos taurus	Cow	98	10	3145.2g
Sus scrofa	Pig	100	17	854.9g
Ovis aries	Sheep	2	1	21.7g
Equus sp.	Mule (?)	1	1	18.5g
Lg. mammal spp.	Pig/Cow Size	110	-	107.9g
Canis familiaris	Dog	96	12	332.3g
Felis domesticus	House Cat	221	20	121.0g
Rattus sp.	Rat	197	18	58.9g
Procyon lotar	Raccoon	88	9	140.3g
Syvilagus floridanus	Cottontail Rabbit	57	10	36.0g
Small mammal spp.	Rat Size	3	-	2.2g
Gallus gallus domesticus	Chicken (egg shells)	860 (362)	40	598.9g (28.7g)
Meleagris gallopavo gallopavo	Domestic Turkey	4	2	15.6g
Anser sp.	Domestic Goose	26	5	40.2g
Aves spp.	Bird	9	-	2.7g
Turtle sp.	Turtle	2	1	2.0g
Colubridae	Snake	4	4	0.4g
Ictalurus spp.	Catfish	128	32	26.7g
Alosa sp.	Shad	687	96	31.4g
Perca flavescens	Yellow Perch	19	26	1.5g
Catostomus sp.	Sucker	1	1	0.1g
Pisces spp.	Fish	130	-	5.1g
Crassostrea virginica	American Oyster	261	137	10221.7g
Mercenaria mercenaria	Quahog Clam	2	2	152.3g
Ischadium recurvum	Ribbed Mussel	3	3	6.0g
Callinectes sapidus	Blue Crab	1	1	0.1g
	Total N.I.S.P.:	3472 w/eggs	**Total Weight**:	15972.3g w/eggs

Table 2.
Distribution Of Faunal Remains From The Feature 142 Privy, Level 4, Old Town Village Site.

Scientific Name	Common Name	N.I.S.P	M.N.I	Weight
Bos taurus	Cow	44	1	101.9g
Sus scrofa	Pig	10	2	110.2g
Lg. mammal spp.	Pig/Cow Size	16	-	19.4g
Canis familiaris	Dog	10	2	27.0g
Felis domesticus	House Cat	20	4	13.3g
Rattus sp.	Rat	16	3	2.5g
Syvilagus floridanus	Cottail Rabbit	4	2	2.2g
Gallus gallus domesticus	Chicken (egg shells)	96 (120)	11 -	103.9g (11.1g)
Colubridae	Snake	1	1	0.1g
Ictalurus spp.	Catfish	36	11	7.5g
Alosa sp.	Shad	78	13	4.0g
Perca flavescens	Yellow Perch	4	2	0.1g
Pisces spp.	Fish	4	-	0.1g
Crassostrea virginica	American Oyster	54	26	2174.1g
	Total N.I.S.P.	513 w/eggs	**Total Weight**	2577.4g w/eggs

Table 3.
Distribution Of Faunal Remains From The Feature 142 Privy, Level 5, Old Town Village Site.

Scientific Name	Common Name	N.I.S.P	M.N.I	Weight
Bos taurus	Cow	9	3	143.9g
Sus scrofa	Pig	7	2	29.5g
Ovis aries	Sheep	2	1	21.7g
Equus sp.	Mule (?)	1	1	18.5g
Lg. mammal spp.	Pig/Cow Size	23	-	17.5g
Canis familiaris	Dog	23	3	142.0g
Felis domesticus	House Cat	22	4	7.1g
Rattus sp.	Rat	27	3	4.3g
Syvilagus floridanus	Cottontail Rabbit	40	3	18.9g
Gallus gallus domesticus	Chicken (egg shells)	214 (12)	8 -	176.3g (0.5g)
Anser sp.	Domestic Goose	11	2	16.2g
Aves spp.	Birds	8	-	0.8g
Colubridae	Snake	1	1	0.1g
Ictalurus spp.	Catfish	43	8	7.8g
Alosa sp.	Shad	132	20	5.8g
Pisces spp.	Fish	34	-	0.8g
Crassostrea virginica	American Oyster	50	24	1583.1g
Mercenaria mercenaria	Quahog Clam	1	1	40.1g
Ischadium recurvum	Ribbed Mussel	3	3	6.0g
Callinectes sapidus	Blue Crab	1	1	0.1g
	Total N.I.S.P.	664 w/eggs	**Total Weight**	2241.0g w/eggs

Table 4.
Distribution Of Faunal Remains From The Feature 142 Privy, Level 6, Old Town Village Site.

Scientific Name	Common Name	N.I.S.P	M.N.I	Weight
Bos taurus	Cow	4	1	138.7g
Sus scrofa	Pig	20	3	126.9g
Lg. mammal spp.	Pig/Cow Size	13	-	12.9g
Canis familiaris	Dog	5	1	23.9g
Felis domesticus	House Cat	12	2	6.1g
Rattus sp.	Rat	3	2	3.2g
Procyon lotor	Raccoon	9	2	10.1g
Syvilagus floridanus	Cottontail Rabbit	7	2	7.2g
Small mammal spp.	Rat Size	3	-	2.2g
Gallus gallus domesticus	Chicken (egg shells)	137 (18)	6 -	98.2g (1.0g)
Anser sp.	Domestic Goose	8	1	9.4g
Aves spp.	Birds	1	1	1.9g
Ictalurus spp.	Catfish	10	4	2.4g
Alosa sp.	Shad	68	9	3.5g
Perca flavescens	Yellow Perch	11	3	1.0g
Pisces spp.	Fish	25	-	1.5g
Crassostrea virginica	American Oyster	52	30	2223.4g
	Total N.I.S.P.	406 w/eggs	**Total Weight**	2673.5g w/eggs

Table 5.
Distribution Of Faunal Remains From The Feature 142 Privy, Level 7, Old Town Village Site.

Scientific Name	Common Name	N.I.S.P	M.N.I	Weight
Bos taurus	Cow	32	3	2555.9g
Sus scrofa	Pig	37	6	368.8g
Lg. mammal spp.	Pig/Cow Size	43	-	45.8g
Canis familiaris	Dog	32	3	58.3g
Felis domesticus	House Cat	95	6	60.9g
Rattus sp.	Rat	110	6	33.3g
Procyon lotar	Raccoon	29	3	46.7g
Syvilagus floridanus	Cottontail Rabbit	6	3	7.7g
Gallus gallus domesticus	Chicken (egg shells)	289 (114)	10 -	137.4g (8.6g)
Meleagris gallopavo gallopavo	Domestic Turkey	4	2	15.6g
Anser sp.	Domestic Goose	7	2	14.6g
Colubridae	Snake	1	1	0.1g
Ictalurus spp.	Catfish	27	6	7.4g
Alosa sp.	Shad	323	42	14.4g
Perca flavescens	Yellow Perch	3	1	0.2g
Pisces spp.	Fish	57	-	2.2g
Crassostrea virginica	American Oyster	61	36	2666.1g
	Total N.I.S.P.	1270 w/eggs	**Total Weight**	6044.0g w/eggs

Table 6.
Distribution Of Faunal Remains From The Feature 142 Privy, Level 8, Old Town Village Site.

Scientific Name	Common Name	N.I.S.P	M.N.I	Weight
Bos taurus	Cow	9	2	204.8g
Sus scrofa	Pig	26	4	219.5g
Lg. mammal spp.	Pig/Cow Size	15	-	12.3g
Canis familiaris	Dog	26	3	81.1g
Felis domesticus	House Cat	72	4	33.6g
Rattus sp.	Rat	41	4	15.6g
Procyon lotor	Raccoon	50	4	83.5g
Gallus gallus domesticus	Chicken (egg shells)	124 (98)	5 -	83.1g (7.5g)
Turtle sp.	Turtle	2	1	2.0g
Colubridae	Snake	1	1	0.1g
Ictalurus spp.	Catfish	12	3	1.6g
Alosa sp.	Shad	86	12	3.7g
Perca flavescens	Yellow Perch	1	1	0.2g
Catostomus sp.	Sucker	1	1	0.1g
Pisces spp.	Fish	10	-	0.5g
Crassostrea virginica	American Oyster	44	21	1575.0g
Mercenaria mercenaria	Quahog Clam	1	1	112.2g
	Total N.I.S.P.	619 w/eggs	**Total Weight**	2436.4g w/eggs

APPENDIX IX
Botanical Remains from the Old Town Village Site Privy, Alexandria, Virginia: A Study of Changing Dietary and Disposal Patterns

by

Lucinda McWeeney

Botanical Remains from The Old Town Village Privy, Alexandria, Virginia:

A Study of Changing Dietary and Disposal Patterns.

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March 1998

TABLES AND FIGURES **First Referred to on Page**

INTRODUCTION

Archaeological excavation of the Old Town Village privy, Feature 142, in Alexandria, Virginia, recovered an immense quantity of materials providing a unique occasion to gain perspective on 19th century life ways. The privy was in use between 1863 and 1890. Numerous privies have been excavated as part of archaeological investigations, however, the focus was often on the ceramics, glassware and other discarded items (for an example see Lewis and Haskell 1981). Food remains were not the primary interest. Therefore, the opportunity to excavate and analyze the Old Town Village privy, probably one of the largest privies addressed archaeologically being 17' in diameter with space for 8 occupants, furnishes a significant opportunity to identify the seeds and nut remains. The botanical specimens will allow us to explore patterns in food consumption and disposal, as well as depict the general landscape adjacent to the privy.

METHODS

Interpretations of the privy deposit will be based on the sampling and subsampling of the water sieved material recovered from 6 of the 7 levels divided from the entire depth of the deposit. Two bags of approximately 3 to 5 pounds from each level were sent for analysis. As part of the random sampling strategy for analyzing a large quantity of material, 1 of the 2 bags from each level was selected for examination. Metric measurements were used for weighing and measuring the botanical materials. The entire contents from each bag of water sieved material was screened through 2 mm and 1 mm grid brass geological sieves to help with the initial sorting. Next the greater than 2 mm size fraction from Level 8 was completely sorted by seed category. However, that required 30 hours of sorting time suggesting a further sampling strategy was necessary to examine several more strata, plus the <2 mm size. Therefore, the >2 mm size recovered from Level 7 was initially sorted by what the eye and fingers could distinguish, pulling out the larger seeds and nut shells while also removing large rocks, coal, wood, and other material not scheduled for analysis. The remaining material > 2mm was then homogenized (stirred) and subsampled into 3 separate 15g samples (the 15 grams weight was originally based on a 10% sample size of the total weight of the < 2 and > 1 mm sample from level 8). Each 15 gram sample was separately sorted under a 2x magnifier lamp, the seeds were

counted and weighed with the goal that comparisons could then be made within and between levels. The < 2 mm fraction was also subsampled in the same manner and sorted under the 2x magnifier. The sorted material was then scanned using a binocular microscope with magnification between 7 and 50x. It took 3 hours to sort a 15 g sample, and it took at least one more hour to count, weigh, and record the material- that was just for cataloging immediately identifiable seeds.

A double arm balance was used to weigh the botanical remains, often to a 0.01 gram readability. Because some of the seeds are very lightweight, when reading the spread sheet 0.01 gram may be an approximate measure because calculations required a real number, not a "<" symbol; similarly, 0.9 g indicates an approximate reading below 1 gram. A zero (0) in the spread sheet cell may indicate an absence of a measurement (e. g. the waste was weighed, but not counted), but not an absence of material. The quantity of several small seeds led to the adoption of using an averaged weight per 100 or 200 seeds to extrapolate the total number of seeds rather than counting each seed (Table 1). In this study I followed paleobotanical conventions in counting each fragment to equal a whole (Reitz and Scarry 1985). For an alternative interpretation I have provided some weights and counts for the number of seeds in some fruits (Table 1).

The unknown seeds were compared to likely matches in the seed study collection as well as photomicrographs and drawings in published references (Anderberg 1994; Martin and Barkley 1973; Montgomery 1977; Renfrew 1973). In some cases consultations were made with other archaeobotanists, however some seeds remain unidentified. The results were entered onto a Microsoft Excel@ spread sheet which allows charts to be made for the presentation of results. Not every level has been completed to the full projected sampling plan. Apparently privy sampling needs to be determined on a case by case basis considering the size of the privy, the integrity of the fill, the amount of recovered botanical remains, as well as the budget and time available for analysis (Rossen 1992; Scarry 1993).

The term "seed" is used in this report although the technical term for some may be achene (a small, usually single-seeded, dry, indehiscent fruit) , caryopsis (a dry nut-like fruit typical of grasses), nutlet, samara, schizocarp or other reproductive forms (Cummings 1993;

Dowden 1994). Botanical definitions are from Allaby (1992). Nomenclature follows Fernald (1970) and Bailey (1925).

RESULTS

Based on the samples from levels 2, and 4 through 7, close to fifty different seeds were identified from the Old Town Village privy deposit in Alexandria, Virginia, Feature 142 (Table 2). Several cultural categories of plants were identified: fruit, vegetables, condiments, weeds, and miscellaneous. While many of the vegetables are truly fruits, the vernacular use of the terms fruit and vegetable were used to divide the foods. The categories could be further divided into wild/cultivated or food/medicinal.

Tomato and raspberry seeds were the most abundant and ubiquitous seeds, being present in every level analyzed. While the numbers vary based on the quantity of material that was sorted there were close to 12,000 tomato seeds found in the > 2mm size category from each of levels 7 and 8 and 39,603 overall (Tables 3 and 4-also see Appendix for major seed category charts for each level). Over 27,000 raspberry seeds were found throughout the levels in both the > 2mm and < 2mm size categories (Table 5). Apple/pear, cherry, cranberry, grape, huckleberry, fig, melon, persimmon, and watermelon seeds were also ubiquitous in levels 8 through 4 and 2 (Figures 1, 2, and 3, 3a, 3b, and 3c).

Materials found in the initial hand sorting of the > 2 mm size make it possible to see significant differences between the deeper, Civil War period levels, compared to the later 19th century levels that correlate with nearby residential use (Table 4). The apple/pear seed classification is included in the major seed category and was recorded for every level analyzed. The 3 different categories including apple, apple/pear, and pear were combined for some calculations. The two species were grouped together due to the difficulty in separating apple from pear based on systematic descriptions by Renfrew (1973) and Anderberg (1994) and the study collection. The digestive and taphonomic processes frequently eradicated characteristics required for absolute classification. Where possible, pears were distinguished from apples based on the seed coat pattern (Anderberg 1994).

The decline in apple and pear consumption is supported by the larger sized material. An overwhelming number of apple and or pear appeared in level 7 (n=701), almost 3 times as many

as in level 8 (n=214), and more than half of what was counted for all levels. A sharp decrease in level 6 (n=100) began the decline recorded for the remainder of the use of the privy. With a natural potential for 10 seeds per apple or pear (5 locule fruits with ~2 seeds per locule) the potential count of whole fruit from level 8 up to 2 represents: 21, 70, 10, 5, 9, 0, 6.

Caution needs to be exercised in this interpretation because these numbers represent the number per level of seeds found in the > 2mm size and level 8 was completely sorted, level 7 had the initial hand sorting plus examination of 3 - 15 gram samples while the other levels may have had only the initial hand sorting followed by examination of 1 - 15 gram sample. Further sorting is required to validate the present standings.

However, there is a clearly visual decline in the larger seed/pit categories recorded for level 6. After the initial sorting of seeds easily removed by hand and without magnification assistance, there is a real drop in the large size seeds/pits (Figure 4). Cherry pits were easily pulled from the matrix and the number of pits increased between levels 8 and 7, where the fullest samples were sorted. The number decreased to 129 in level 6, but nearly tripled in level 4. Close to the end of the era, a decline of nearly 80% appears in level 2. Many of the cherry, plum, and peach pits were whole; a few of the pits were broken. Grapes produced the biggest quantity in the category of "large seeds" (Figure 4), but the largest size pits came from peaches found in levels 8 and 7. Grape seeds declined nearly 80 % from 2,323 and 2,839 (averaged to 2,581) in the two deepest levels to 457 in level 6.

The 23 peach pits and fragments were large and easy to recover during the initial sorting, although several smaller fragments were identified through the magnified sorting process. The largest number of pits came from the initial sorting of level 7 compared to only 3 from level 8. Peach pits were not recovered from levels 6 through 4 (level 3 was not sorted) but 1 pit in level 2 suggests that peaches remained a part of the diet.

Nutshells, and large pits or seeds from cherries, plums, grapes, and peaches were abundant in the > 2mm recovery (Table 4, Figure 5). Chestnut shell fragments were found in levels 8,7, 6, and 4; (Figure 4); hickory nut was found in levels 7 and 6; walnuts (black walnut and California species) came from levels 7 and 6; peanuts were recovered from levels 8, 7, 6, and 2; the greatest quantity (n=17) came from level 2 (Figure 5 and 6). However, when

interpreting a quantity, the weight is a factor to consider; the 17 fragments in level 2 weighed 0.62 gram, which is less than the average weight for one whole peanut shell (0.78 gram).

Watermelon continued to be part of the record throughout the 6 privy levels examined; fluctuations of as much as 2 to 3 times the amount appeared in level 7 and again in level 4. This pattern was reflected by the watermelon seed fragments recovered in the < 2mm size material, as well.

A total of seventy one persimmon seeds and fragments appeared in the privy deposits. Beginning with 14 pieces in level 8, the number drops by half in level 7 but rebounds by doubling to 14 in level 6. A decrease to only 3 seeds in level 5 is followed by a remarkable rebound to 31 fragments and whole seeds distinguishing level 4. By the end of the privy's usefulness the number of persimmon seeds deteriorated to 2.

Some of the seeds were poorly represented in the > 2mm fraction but abundantly represented in the < 2 mm size sorted for levels 8 through 5. The < 2 mm size was not sorted from levels 4, 3, and 2 (Table 6). Huckleberry, strawberry, fig and the weed seeds were more abundant in the smaller sieved material (Figure 7, 7a). Those found in the larger sieve most likely had been caught in the matrix, inside of or clinging to the outside of other seeds. The **major** seeds found in the < 2 mm sieve were dominated by seeds representing food (Figure 3b): apple/pear, cranberry, fig/mulberry, grape seed fragments, huckleberry, raspberry, and tomato (Table 6, Figure 7). Raspberries were omitted when making Figure 7 because the immense quantity skewed what could be observed for the other seeds, but can be seen in Figure 3c.

The minor seed categories in the < 2mm size also included foods, condiments and weeds. Some of the foods are: unspecified berries and drupes, cherry pit fragments, cucumber and unspecified Cucurbita fragments, members of the nightshade family such as eggplant and peppers, as well as elderberry and strawberry seeds (Figure 7). The nightshade family (Solanaceae) contains food and weed species, as well as poisonous plants.

Comparing all of the 15 gram samples from each of the levels where the <2 mm fraction was sorted shows that level 7 had the largest quantity of fig seeds, and more than half the total for all of the levels (Table 6 and Figure 7, 7a). Fig and mulberry seeds are nearly identical in appearance, but based on the study collection the smaller size and less acute hilum area indicate

the majority of Moraceae seeds from the privy appear to be from **figs**. The most **cranberry** seeds appeared in level 7 as well as the largest number of drupes (the fleshy covered nutlets that were not digested from eating the blackberry/raspberry type fruits). Level 7 also contained the largest number of *Rubus* seeds (blackberry/raspberry-type, n=8,352), with the next largest quantity found in level 8 containing 7,445 seeds; level 5 followed with 1,740 and the least were found in level 6 with less than half as many (n=840). There was a sampling differential between levels, however the proportions continue to represent this hierarchy (Table 7) in the < 2mm samples. The whole grape seeds appeared predominantly in the >2 mm sieve but based on 1 of the 15 gram samples of < 2 mm from the post Civil War use, a, large number of grape seed fragments were found in level 6. The quantity of tomato seeds in level 6 is also double that found in level 5, following the order levels 8>7>6>5. The only time Level 5 had the largest quantity of a seed category in the post Civil War levels, was for the amount of huckleberry.

Based on comparing the material found in at least 1 -15 grams sample from each of levels 8, 7, 6, and 5 we can hypothesize that apples and pears declined in popularity or were less available after the Civil War up until midway through the privy use. Cranberry consumption also demonstrates a significant decrease from the wartime use of the privy through the 3rd quarter of the century. That pattern was repeated for the ubiquitous raspberries and tomatoes (Figure 3) as well as the less numerous seeds from cucumber/Cucurbita, elderberry, figs, grapes, peppers and strawberries. Despite the decline in many of the food plants, it does remain evident that certain taxa continued to be represented in the privy: apples/pears, grapes, figs, cranberry, strawberries and other berries - especially the blackberry/raspberry category (Figures 3, 3a, 3b, 3c). Watermelon seeds continued to appear in minor amounts through out the period. Much of this evidence is supported by the fragments found in the < 2 m size sorting.

Weeds were recovered from levels 8, 7, 6, and 5. The less than 2 mm size component contained several plants categorized as weeds: Brassica, goosefoot, foxtail, Malva, nightshade, pokeweed, sedge, smartweed, dock, spurge, and a seed similar to but not thistle (therefore designated as "thistle-like," and pondweed (Table 2, Figure 8). Seeds identified as possibly being pondweed exhibit spiral (coiled) embryos which share characteristics with the goosefoot family (Chenopodiaceae) and pokeweed. However at this time an absolute identification is not

possible. Spinach, sea-blite, and pokeweed have been eliminated as alternate choices.

Miscellaneous materials such as fruit skins, eggshell fragments, small mammal and fish bones, and fish scales were sorted to compare with other analyzed privy sites (Table 8). Other obvious materials such as teeth (non-human), hair, insect and larvae body parts, matchsticks, wood, charcoal, coal, metal artifacts, gun shot, beads, buttons, and glass were sorted randomly incase they would be meaningful to the interpretation of the site.

The results for each level are presented on spreadsheets and displayed on charts in the appendix. It is obvious from the charts that some comparisons between levels can not be made without doing further analyses of the < 2mm fraction from the upper levels. However, materials found in the initial hand sorting make it possible to see strong differences between the deeper, Civil War levels, compared to the later 19th century levels representing residential deposits.

DISCUSSION

The Old Town Village privy contained remarkable evidence from more than fifty different plants found in and around the railroad and residences during the period from approximately 1863-1890. The major seed categories are food remains (Figures 2 and 3b), and the botanical analyses indicate a significant diversity of plant materials, some of which represent the long distance that foods were transported during the mid-nineteenth century. For this analysis the plant remains have been classified by size category as well as their cultural categories. The uses are numerous and multiple purposes may be assigned to individual plants, whether we view them as weeds, foods, or medicines. According to Scarry (1993) seeds that are found in privies have hard seed coats which enhances their post-deposition survival rate. Since privies are known to have been used for trash disposal or accidental loss, it can be assumed that not all of the privy material passed through the human digestive system. Some of the sorted materials such as fruit skins, eggshell fragments, small mammal and fish bones, and fish scales may be end products of a meal. Other processes can be correlated with the deposition of teeth (non-human), hair, insect and larvae body parts, matchsticks, wood, charcoal, coal, metal artifacts, gun shot, beads, buttons, and glass. In many cases, the seeds that survived the food preparation and processing through the digestive tract have some indication of mastication; they have been chewed and broken.

Foods

Many of the seeds recovered from the privy can be associated with foods. Several of the foods represented in the privy may have been grown locally. They may have been eaten raw or cooked. In turn, many of the foods may have been imported and processed prior to arrival in Virginia. By the 19th century and thanks to improvements during the Industrial Revolution many processed or prepared foods were offered for sale through out the eastern United States. Developments in canning, processing, preservation, and transportation brought more imported and exotic foods into the everyday world and accessible to many consumers (Jones 1993).

Some of the food remains found in the privy suggest the extensiveness of this trade as well as locally available foods: Nuts are in this category. Walnuts, were represented by shells from the California-type and black walnuts which were native species. Peanuts grew naturally in the south; in fact the peanut does not grow well north of Washington, D. C. according to Bailey (1925: 2505). The American chestnut may have been the source for that shell, however European chestnuts were also imported into this country. Hickory nuts are native to this country, and were heavily exploited for food since prehistoric times.

Two the most ubiquitous seeds came from *Rubus* spp.(raspberries/blackberries) and tomatoes. Today we eat tomatoes raw as well as processed or preserved without compunction. However, there was a certain reluctance on the part of the early settlers to eating a fruit that was first thought to be poisonous. This may suggest that during the 19th century tomatoes were consumed from a processed state such as ketchup, chutney, sauces (Jones 1993), or stews (Otto 1984). The seeds may have been retained during the preparation and the quantity of tomato seeds recovered from the privy suggests they were ignored during eating no matter how the food was consumed.

The abundance of raspberry/blackberry seeds can be explained in several ways. They are thick and woody textured so they will preserve well. In fact they survive thousands of years under anaerobic conditions (McWeeney 1994). Since the fruits are small and one berry may have over 100 seeds there is a statistical chance that more will survive to represent their consumption. The fruits may have been eaten raw when they were in season during the summer through early Fall. Or the berries may have been consumed in baked goods such as pies, tarts

or cobblers. The same is true for several of the fruits recovered from the privy: raspberries, blackberries, strawberries, peaches, plums, cherries, apples, pears.

Seeds from the Moraceae or Mulberry family were abundant in the privy levels, especially from the Civil War period. Both fig and mulberry trees were being cultivated in this country by the 18th century (Moore 1987). Many mulberry trees (*Morus multicaulis*) were imported to develop the silk worm industry in the early 19th century (Bidwell and Falconer 1941: 380). While that endeavor was not financially successful it did leave numerous trees cultivated across the landscape in the north and the south. However, the seeds suggest that the popular fruit being consumed in Alexandria was the fig.

Apples, pears, plums, quinces, and cherries were planted in New England beginning in the 17th century (Bidwell and Falconer 1941). The same fruits were frequently cultivated in the southern states, although pears grew better in the northern and Great Lake states (Bailey 1925). In particular, Thomas Jefferson was experimenting with numerous hybrids of several fruits during his stay at Monticello from the 1760s on (Baron 1987). Jefferson's experiments with several varieties of cherries helps to explain why there was a multitude of cherry pit sizes found in the privy. A few mentioned by Baron (1987) include: Carnation cherry, Duke cherry, Broadnax's cherry, very fine late cherry, wild cherry, "198 Cherries of different kinds from Italy," along with "rows of cherries intended for stocks to inoculate on," (Baron 1987: 52-62).

Apple and pear varieties were also subject to grafting and hybridization. Orchards were present on many farms for family production of cider (Bidwell and Falconer 1941), as well as for baked goods such as pies, tarts, and cobblers. Apparently the fruit were frequently consumed in their entirety since so many of the seeds were recovered from every analyzed level in the privy. Jefferson was planting pears, New York apples, and Crataegus (haw or hawthorn) at Monticello.

Besides apples, many fruits, such as peaches, plums, cherries, and grapes were also grown for the production of fermented drinks such as brandy and wine (Bidwell and Falconer 1941:17). While Jefferson was experimenting with viticulture at Monticello (Baron 1987), one would not expect the thousands of grape seeds found in various size ranges and possibly from different species to have been from wine. The various levels of maturity suggest some of the seeds may have come from raisins as well as fresh fruit.

Although today peaches can be grown close to the north coast of Nova Scotia due to the proximity of the Gulf Stream, peaches are more traditionally associated with agriculture in the middle Atlantic and southern states While several of the peach pits recovered from the privy were broken and possibly broken during consumption, it is difficult to imagine humans eating the peach and its pit without some duress.

Apparently watermelons or citrons were brought into North American with the early settlers from the Netherlands (Bidwell and Falconer 1941). It is important to note that the citrons were included on the Commissary General's list of rations for the Confederate army (Moore 1987). The seeds recovered from the privy were a whitish color, which in our modern watermelons would indicate a level of immaturity. However, those found in the privy appeared to be woody or thick and not at all immature.

Oranges and lemons were brought into the United States with the early settlers. The fruit could be grown in orangeries by those wealthy enough to support those structures and the labor entailed (Ackerson...Lord– in Baltimore). Jefferson was tending orange trees at Monticello (Baron 1987). The juices, a favorite flavoring in punches, were advertised for sale in the 18th century newspapers (Jones 1993). Finding seeds in the privy strongly suggests the whole fruit was available, and would have been a great source of vitamin C for the prevention of scurvy.

Jefferson's *Garden and Farms* books document his dynamic interest in plant experimentation and development. He actively imported or encouraged traveling friends to bring him back what ever plants they could (Baron 1987). In fact the lists of plants grown at Monticello leaves no doubt that it was possible by the late 18th century to locally (within the borders of Virginia) produce almost any of the foods represented in the Old Town Village privy.

One exception to home grown at Monticello may be Cranberries (*Vaccinium macrocarpon*).While many of us may link cranberries with the modern commercial cranberry bogs in Massachusetts, according to Jones (1993:36) New York growers were shipping the berries into Canada as early as 1750. Therefore we can presume that shipments were being to sent to other parts of North America. As civil war broke out, the cranberries would have provided an excellent source of vitamin C to help prevent scurvy for the Union soldiers stationed in or moving through Alexandria.

Coffee presents another exception to a locally grown product. A few coffee beans were recovered from levels 7 and 8. The link to the Civil War activity levels is consistent with coffee being included on the list of rations (Moore 1996). Coffee beans could be roasted over open fires using shallow pans with hand-turned, rotating blades to keep the beans moving and prevent burning. However, the level of grinding may have been inconsistent, thereby allowing a few whole beans to accidently fall into a cup of brewed coffee and thus into the digestive system.

Some of the vegetables represented in the privy include peppers, eggplant, and cucumbers, Peppers: (*Capsicum* spp) red pepper, green pepper (an unripe red pepper). Origins in the New World. Used as a food, condiment, and medicine for dropsy, colic, argue, and toothache and various tropical fevers (Bailey 1925). As a food, peppers could be eaten raw, or added to sauces, and soups. If some of the seeds are from chili peppers they may represent a condiment, such a Kyan [Cayenne?] pepper, a hot pepper sold like mustard in 1/4 and ½ pound bottles during the 18th century (Nova Scotia Advertiser cited in Jones 1993). Other condiments such as coriander and one possible clove suggest that the people did enhance the flavor in their basic food preparation.

Eggplant is rarely mentioned in the list of cultivated vegetables, however the seeds did appear in the privy. Originally thought to be from India, the plant requires a long, warm growing period such as that found in tropical regions, and the southern United States (Bailey 1925).

Cucumbers (Cucurbita) (*Cucumis sativus*) Native of Asia. Cucumbers may be eaten raw, in salads, or pickled (Bailey 1925). Advertisements from the 18th century frequently mentioned pickles or girkins (*Cucumis anguria*) for sale in quart, pint, and half-pint bottles (Nova Scotia Gazette and Weekly Chronicle [NSG&WC] 2 May 1780, Quebec Gazette 15 Aug. 1763 cited in Jones 1993). Muskmelon also falls into this genus, *Cucumis Melo* var. *flexuosus*. Jefferson was growing cucumbers and muskmelons at Monticello during the late 18th century. Other cucurbit-like seeds may have been from squashes or gourds.

Weeds

Several of the weedy-type plants appeared in the form of seeds and pollen analyzed for the privy (Cummings and Moutoux 1997). Some of these include: Brassicaceae, or the wild mustard family with a seed of black mustard; Cheno/am as goosefoot or pigweed; *Euphorbia*

pollen and 16 spurge seeds; *Polygonum* and *Rumex* with at least 12 seeds recovered from the privy. Pollen from some of the food-types represented by the seeds included *Cerealia* with the foxtail grass; *Fragaria* or strawberry seeds; *Eugenia* as 1 potential clove; and *Malus* or apple which was abundantly represented by the seeds.

Some of the "weedy" seeds (Figure 8) may be associated with food. For instance, Brassica includes *Brassica oleraceae*: broccoli, cauliflower, and cabbage (Bailey 1925). However, the seeds identified as Brassica in this case appear to be *Brassica nigra* or black mustard seed.

The nightshade family includes the weed-like ground cherries (*Physalis* spp.) as well as tomatoes, potatoes, eggplant (*Solanum* spp.), and peppers (*Capsicum*) (Fernald 1970). The privy deposits were predominantly from peppers and eggplant. Only 1 species from this family found in the privy could not be determined, but appears to be a *Physalis* spp. (ground cherry). Those species representing foods are discussed elsewhere.

The grass "foxtail" (Setaria spp.) is known to inhabit cultivated areas or waste places, and roadsides (Fernald 1970:226). However, while it may be considered a modern weed in this country, it is one of the many species included under the cereal grain called millet that is cultivated as major food source in other countries.

Other weed plants represented in the privy also have been used as food resources. If collected in the early springtime, the young stalks of pokeweed which grow in waste places can be prepared as a vegetable (Medsger 1966). Cheno/Am representing goosefoot and pigweed growing equally well in waste places or in cultivated gardens, produces thousands of seeds per plant. Ground into a flour, the seeds were considered a starvation food by wartime civilians in Europe and intentionally cultivated by Native Americans (Medsger 1966).

The numerous species of spurge, represented as seeds and in the pollen from the site (Cummings and Moutoux 1997), grow predominantly in open areas, sandy soils, waste places, roadsides, and old fields. Eastern red cedar (*Juniperus* cf. *virginiana*) grows in similar conditions (Fernald 1970; Harrar and Harrar 1962), and a twig was recovered from level 7. The varied weed seeds and the presence of eastern red cedar leads to an overall interpretation that the above mentioned weed-type plants were indeed weeds, not food resources, growing around

the location of the privy. One can picture heavily trodden ground during the Civil War period that left barren, open patches for pathways adjacent to sections of ground that supported the growth of weeds. Many of these weeds could have grown very close to neglected privy walls, thereby increasing the opportunity for seeds and pollen to end up in the privy fill.

Comparing the Old Town Village privy with other southern privy analyses (Table 8) demonstrates that of the 19th century privies the one from Alexandria contained the largest diversity. Raspberries, cherries, plums, grapes, and strawberries were ubiquitous. Apple seeds, pear, and elderberry, were also recovered from Harpers Ferry, Virginia (Cummings in Halchin et al. 1994), and Louisville, Kentucky (Rossen ms.). Fig/mulberry and watermelon appeared at Harpers Ferry and Ashland (Scarry in McBride et al. 1993). Huckleberry and melon were each found at one of the other sites: melon at Ashland and huckleberry at Harpers Ferry which also had the only other Crataegus specimens. In addition to Alexandria, persimmon was found in Louisville. Peaches were found at Ashland and Louisville. Blueberries were not found from the Old Town privy, but were recovered from Harpers Ferry and Ashland. The ericaceous fruit found in Alexandria was cranberry and represents a unique discovery in the southern context.

Tomatoes were the ubiquitous seeds from the vegetable. Harpers Ferry had cucumbers, and Ashland had Capsicum pepper, but the eggplant remains unique to Alexandria. The urban Old Town privy did not contain evidence for the native squash, corn, and beans that were found in the other sites. Similar weeds were evident at the other sites, expecially Cheno/Am. Alexandria and Ashland recovered nutshell but the list for Old Town Village contains chestnut while Ashland had butternut shells. Condiments were more extensively represented at Harpers Ferry, but in the overall comparisons, that site compares well with Feature 142 from Alexandria.

CONCLUSION

The abundance of fruit seeds suggests that the people in Alexandria enjoyed access to fresh fruits that grew locally and others that were imported. Based on previous evidence drawn from the southeast and north into Canada, the people consumed prepared sauces, stews, soups, chutneys, preserves and/or baked goods such as tarts and pies (Jones 1993; Otto 1984. The opportunity for beverages such as coffee and citrus drinks is also implied by the seed remains. Coffee was listed as an important ration for the southern army (Moore 1996). The plants from

the privy are significant for representing interstate commerce as well as the expansion of our knowledge of provisions for the Union Army during the Civil War. The sharp drop-off rate after level 7 for many of the seeds, especially those with large seeds or pits, suggests that level 6 represents the period when residential use of the privy began. The numerous weed species depict a trodden, untended landscape in the proximity of the privy for the periods represented by levels 8 through 4.

It is very clear that the archaeological examination of the botanical remains from a privy, in this case Feature 142, provides the picture of a more diverse and healthy diet than one might gather from reports by the Commissary General (Moore 1996) for the Civil War period, or from books on plantation life (Ferguson 1992), or reports on agricultural history of the United States (Bidwell and Falconer 1941). In fact, archaeological reports on botanical remains from privies provide some of the most informative evidence for past foodways (Cummings 1993; Cummings and Puseman 1994; Rossen 1992; Scarry 1993).

The Old Town privy provided a significant opportunity to compare military influence over residential use of an extremely large privy unit. Reflecting on the contents of the privy from Harpers Ferry compared to Old Town Village, it remains to be examined whether 1) wartime commerce brought more food varieties into Alexandria to support the Union army war efforts and the Confederate army at Harpers Ferry, or 2) wartime and the railroad brought more people to use the privy, therefore more abundant plant remains and diversity filled the deposit in the early years of its use.

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Table 1. Weight and averaged quantities for selected seeds

Fruit	Number / weight	Number / fruit
Apple	5 / 0.1 g	up to 10 / fruit
Fig		1,600 / fruit (Renfrew p.135)
Huckleberry	200 / 0.30 g	9-10 / fruit
Peach	1 / 4.62 g	1 / fruit
Peanut	1 / 0.78 g	1 shell / fruit
Pear	10 / 0.17-0.2 g	up to 10 / fruit
Raspberry	200 / 0.43 g	131 / fruit
Strawberry		301 / fruit
Tomato	100 / 0.15 g	150 / fruit

TABLE 2. Old Town Village II Privy Food Remains

COMMON NAME	LATIN NAME
Almond	*Amygdalus*
Apple	*Malus* spp.
Apple/ pear	*Malus/Pyrus*
Berries	
Brassica	Brassicaceae
Cheno/Am	Chenopodiaceae
Cherry	*Prunus virginiana*
Chestnut	*Castanea* spp.
Citrus	*Citrus* spp.
Cloves	*Eugenia* spp.
Coffee bean	*Coffea arabica*
Coriander	*Coriandrum sativum*
Cranberry	*Vaccinium macrocarpon*
Hawthorn	*Crataegus* spp.
Cucumber	*Cucurbit*
Cucurbit	Cucurbitaceae
Dock	*Rumex* spp.
Drupes	*Drupes*
Eggplant	*Solanum melongena*
Elderberry	*Sambucus* spp.
Fig/Mulberry	*Ficus/Morus*
Foxtail	*Setaria* spp.
Fungi	*Sclerotia*
Grape	*Vitis* spp.
Grass/foxtail	Gramineae/*Setaria*
Hawthorne	*Crataegus* spp.
Hickory nut	*Carya* spp.
Huckleberry	*Gaylussacia bacata*
Lemon	*Citrus limonia*
Malva-like	*Malvaceae*
Melon	*Cucumis* spp.
Mulberry family	*Moraceae*
Nightshade family	*Solanaceae*
Peach	*Persica vulgaris*
Peanut	*Arachis hypogea*
Pear	*Pyrus* spp.
Pepper,green/chilie	*Capsicum* spp.
Persimmon	*Diosporus virginiana*
Plum	*Prunus* spp.
Pokeweed	*Phytolacca virginianum*
Pondweed	*Potamogeton* spp.
Raspberry	*Rubus* spp.
Sedge	*Cyperaceae*
Smartweed	*Polygonum* spp.
Smartweed/Dock	*Polygonaceae*
Spurge	*Euphorbia* spp.
Strawberry	*Fragaria* spp.
Thistle	*Circium* spp.
Tomato	*Lycopersicum esculentum*
Viburnum	*Viburnum* spp.
Walnut, black	*Juglans nigra*
Watermelon	*Citrullus vulgaris*

Fruit Skins

BY CATEGORY

FRUITS

Apple	*Malus* spp.
Apple/ pear	*Malus/Pyrus*
Cherry	*Prunus virginiana*
Citrus	*Citrus* spp.
Cranberry	*Vaccinium macrocarpon*
Hawthorn	*Crataegus* spp.
Elderberry	*Sambucus* spp.
Fig/Mulberry	*Ficus/Morus*
Grape	*Vitis* spp.
Hawthorne	*Crataegus* spp.
Huckleberry	*Gaylussacia bacata*
Lemon	*Citrus limonia*
Melon	*Cucumis* spp.
Mulberry family	*Moraceae*
Peach	*Persica vulgaris*
Pear	*Pyrus* spp.
Persimmon	*Diosporus virginiana*
Plum	*Prunus* spp.
Raspberry	*Rubus* spp.
Strawberry	*Frageria virginiana*
Watermelon	*Citrullus vulgaris*
Viburnum	*Viburnum* spp.

VEGETABLES

Mustard Family	Brassicaceae
Cucumber	*Cucurbit*
Cucurbit	Cucurbitaceae
Eggplant	*Solanum melongena*
Nightshade family	*Solanaceae*
Pepper,green/chilie	*Capsicum* spp.
Tomato	*Lycopersicum esculentum*

GRAINS

Grass/foxtail	Gramineae/*Setaria*

NUTS

Chestnut	*Castanea* spp.
Hickory nut	*Carya* spp.
Peanut	*Arachis hypogea*
Walnut, Amer.	*Juglans nigra*

WEEDS

Brassica	Brassicaceae
Cheno/Am	Chenopodiaceae
Dock	*Rumex* spp.
Grass/foxtail	Gramineae/*Seteria*
Malva-like	*Malvaceae*
Nightshade family	*Solanaceae*
Pokeweed	*Phytolacca virginianum*
Smartweed	*Polygonum* spp.
Smartweed/Dock	*Polygonaceae*
Spurge	*Euphorbia* spp.
Thistle-like	Unknown

CONDIMENTS

Cloves	*Eugenia* spp.
Coffee bean	*Coffea arabica*
Coriander	*Coriandrum sativum*

MISCELLANEOUS

Fishscale	
Fungi	*Sclerotia*
Pondweed (possible)	*Potamogeton* spp.
Sedge	*Cyperaceae*

Table 3

OLD TOWN VILLAGE II PRIVY TOTALS BY LEVELS									
	Level 8			Level 7			Level 6		
Seeds and...	>2 mm	<2 mm	Total	>2 mm	< 2 mm L	Total	> 2mm	< 2mm, n=1	Total
Apple	0	12	12	31	0	31	0	0	0
Apple/ pear	187	80	267	696	40	736	122	2	124
Berries	0	10	10	125	0	125	5	0	5
Brassica	2		2	0	0	0	0	1	1
Cheno/Am cf.	0	1	1	0	0	0	0	0	0
Cherry	244	3	247	455	0	455	143	0	143
Chestnut	7	0	7	31	0	31	2	0	2
Citrus	7	0	7	6	0	6	1	0	1
Cloves	0	0	0	1	0	1	0	0	0
Coffee bean	3	0	3	11	0	11	0	0	0
Coriander	0	3	3	7	3	10	1	1	2
Cranberry	0	63	63	2	118	120	1	5	6
Crataegus cf.	0	0	0	1	0	1	0	0	0
Cucumber	27	5	32	84	0	84	0	0	0
Cucurbit	0	1	1	0	8	8	8	0	8
Dock	0	2	2	0	0	0	0	0	0
Drupes	0	24	24	9	61	70	0	0	0
Eggplant	0	0	0	0	0	0	1	3	4
Eggshell	36	0	36	16	2	18	24	0	24
Elderberry	0	23	23	0	19	19	0	2	2
Fig/Mulberry	6	186	192	2	298	300	0	12	12
Fishscale	0	1	1	5	18	23	29	8	37
Foxtail/grass	2	21	23	0	1	1	0	0	0
Fungi	1	6	7	0	1	1	1		1
Grape	2,323	106	2429	2887	23	2910	429	28	457
Hickory nut	0	0	0	2	0	2	1	0	1
Huckleberry	44	1219	1263	21	1341	1362	0	85	85
Lemon cf.	0	0	0	1	0	1	0	0	0
Malva-like	0	0	0	1	1	2	0	0	0
Melon	15	0	15	19	0	19	21	0	21
Nightshade family	0	1	1	64	3	67	0	1	1
Peach	3	0	3	33	0	33	0	0	0
Peanut	7	0	7	16	0	16	1	0	1
Pear	27	0	27	28	0	28	1	0	1
Pepper,red/chili	40	0	40	1	2	3	18	1	19
Persimmon	14	0	14	7	0	7	14	0	14
Plum	16	0	16	68	0	68	6	0	6
Pokeweed	14	2	16	3	0	3	1	0	1
Pondweed cf.				0	0	0	0	0	0
Raspberry	5,728	7445	13173	2,881	8,352	11233	260	840	1100
Sedge	0	2	2	0	0	0	0	0	0
Smartweed	0	8	8	0	1	1	0	0	0
Smartweed/Dock	0	0	0	0	3	3	0	0	0
Spurge	0	12	12	5	1	6	0	2	2
Strawberry	9	17	26	1	5	6	0	2	2
Thistle-like	0	2	2	0	0	0	0	1	1
Tomato	11,866	1173	13039	14,564	839	15403	2163	481	2644
Viburnum	0	0	0	0	0	0	3	0	3
Walnut	0	0	0	8	0	8	1	0	1
Watermelon	87	3	90	225	5	230	122	1	123
Unknown	15	28	43	6	6	12	0	0	0
Unknown nutshell	6		6	9	0	9	0	0	0
Unknown sesame-like	0	0	0	2	0	2	0	0	0
Beetle parts	0	0	0	3	0	3	0	0	0
Insect/larvae	0	0	0	22	162	184	43	18	61
Fruit skins	0	0	0	0	0	0	100	30	130
Misc. beads/stones	0	0	0	0	6	6	0	0	0

Table 3

OLD TOWN VILLAGE II PRIVY SEED TOTALS BY LEVELS									
	Level 5			Level 4			LEVEL 3 Not Analyzed		
Names	All > 2mm	< 2mm, n=1	Total	>2 mm	<2 mm	Total	>2 mm	<2 mm	Total
Apple	0	3	3	0	Not	0			0
Apple/ pear	99	9	108	85	analyzed	85			0
Berries	8	0	8	5		5			0
Brassica	0	0	0	0		0			0
Cheno/Am cf.	0	0	0	0		0			0
Cherry	263	0	263	398		398			0
Chestnut	3	0	3	6		6			0
Citrus	0	0	0	0		0			0
Cloves	0	0	0	0		0			0
Coffee bean	0	0	0	0		0			0
Coriander	3	2	5	0		0			0
Cranberry	1	2	3	0		0			0
Crataegus cf.	0	0	0	0		0			0
Cucumber	1	0	1	0		0			0
Cucurbit	0	0	0	0		0			0
Dock	0	0	0	0		0			0
Drupes	0	14	14	0		0			0
Eggplant	0	0	0	1		1			0
Eggshell	4	2	6	15		15			0
Elderberry	0	5	5	0		0			0
Fig/Mulberry	1	103	104	0		0			0
Fishscale	9	9	18	9		9			0
Foxtail/grass	0	9	9	0		0			0
Fungi	0	7	7	0		0			0
Grape	335	32	367	243		243			0
Hickory nut	0	0	0	0		0			0
Huckleberry	7	1705	1712	5		5			0
Lemon cf.	0	0	0	0		0			0
Malva-like	0	1	1	0		0			0
Melon	25.5	0	25.5	51		51			0
Nightshade family	5	1	6	0		0			0
Peach	0	0	0	0		0			0
Peanut	1	0	1	0		0			0
Pear	6	0	6	0		0			0
Pepper,red/chili	6	2	8	3		3			0
Persimmon	3	0	3	31		31			0
Plum	7	0	7	0		0			0
Pokeweed	0	0	0	0		0			0
Pondweed cf.	0	10	10	0		0			0
Raspberry	624	1766	2390	8		8			0
Sedge	0	1	1	0		0			0
Smartweed	0	0	0	0		0			0
Smartweed/Dock	0	0	0	0		0			0
Spurge	0	1	1	0		0			0
Strawberry	0	5	5	0		0			0
Thistle-like	0	1	1	0		0			0
Tomato	1958	313	2271	555		555			0
Viburnum	1	0	1	4		4			0
Walnut	0	0	0	0		0			0
Watermelon	185.5	5	190.5	230		230			0
Unknowns	0	2	2	1		1			0
Unknown nutshell	9	0	9	0		0			0
Unknown sesame-like	0	0	0	0		0			0
Beetle parts	0	3	3	0		0			0
Insect/larvae	7	25	32	5		5			0
Fruit skins	0	0	0	10		10			0
Misc. beads/stones	0	2	2	1		1			0

Table 3

OLD TOWN VILLAGE PRIVY REPORT

MAJOR FRUIT CATEGORIES

Names	>2 mm	<2 mm	Total	
Apple/ pear	1223	131	1497	
Cherry	1587	3	1590	
Fig/Mulberry	9	599	608	
Grape	6312	189	6501	
Huckleberry	78	4350	4428	
Raspberry	9529	18403	27932	
Tomato	31839	2806	34645	
Watermelon	939.5	14	953.5	
Apple	54	15	69	Added
Apple/ pear	1223	131	1354	to Ap/pe
Pear	74	0	74	

CONDIMENT CATEGORIES

Citrus	14	0	14
Cloves	1	0	1
Coffee bean	14	0	14
Coriander	11	9	20

MISCELLANEOUS CATEGORIES

Eggshell	118	4	122
Fishscale	52	36	88
Fungi	2	14	16
Unknowns	22	36	58
Unknown nutshell	24	0	24
Unknown sesame-lik	2	0	2
Beetle parts	3	3	6
Insect/larvae	77	205	282
Fruit skins	224	30	254
Misc. beads/stones	2	8	10

MINOR FRUIT SEED CATEGORIES

Names	>2 mm	<2 mm	Total
Berries	144	10	154
Citrus	14	0	14
Cranberry	4	188	192
Crataegus cf.	1	0	1
Drupes	9	99	108
Elderberry	0	49	49
Melon	149.5	0	149.5
Peach	37	0	37
Pear	74	0	74
Persimmon	71	0	71
Plum	100	0	100
Strawberry	10	29	39
Viburnum	12	0	12
Lemon cf.	1	0	1

Lemon added to citrus category

MINOR WEED CATEGORIES			
Brassica	2	1	3
Cheno/Am cf.	0	1	1
Dock	0	2	2
Foxtail/grass	2	31	33
Malva-like	1	2	3
Nightshade family	69	6	75
Pokeweed	18	2	20
Pondweed cf.	1	10	11
Sedge	0	3	3
Smartweed	1	9	10
Smartweed/Dock	0	3	3
Spurge	5	16	21
Thistle-like	0	4	4

MINOR VEGETABLE CATEGORIES

Cucumber	130	5	135
Cucurbit	8	9	17
Eggplant	2	3	5
Nightshade family	69	6	75
Pepper,red/chili	72	5	77

NUT CATEGORIES

Chestnut	49	0	49
Hickory nut	3	0	3
Peanut	42	0	42
Walnut	9	0	9
Unknown nutshell	24	0	24

Table 4. Total of the Initial Sorting of the > 2mm size material for comparison by level

Initial Sort	Level 8	Level 7	Level 6	Level 5	Level 4	Level 3	Level 2	
	>2 mm	>2mm	>2mm	> 2mm	>2 mm	not	>2 mm	
Seeds and...	Quantity	Quantity	Quantity	Quantity	Quantity	sorted	Quantity	Total
Apple	0	31	0	0	0		20	51
Apple/ pear	187	645	99	40	85		20	1076
Berries	0	120	5	6	5		0	136
Brassica	0	0	0	0	0		0	0
Cheno/Am cf.	0	0	0	0	0		0	0
Cherry	244	447	143	254	398		82	1568
Chestnut	7	27	2	3	6		0	45
Citrus	7	6	1	0	0		0	14
Cloves	0	0	0	0	0		0	0
Coffee bean	3	8	0	0	0		0	11
Coriander	0	5	0	1	0		0	6
Cranberry	0	2	0	0	0		0	2
Crataegus cf.	0	1	0	0	0		0	1
Cucumber	27	84	0	0	0		11	122
Cucurbit	0	0	0	0	0		0	0
Dock	0	0	0	0	0		0	0
Drupes	0	0	0	0	0		0	0
Eggplant	0	0	0	0	1		0	1
Eggshell	36	2	0	0	15		11	64
Elderberry	0	0	0	0	0		0	0
Fig/Mulberry	6	0	0	0	0		0	6
Fishscale	0	2	0	0	9		0	11
Foxtail/Grass	2	0	0	0	0		0	2
Fungi	1	0	0	0	0		0	1
Grape	2323	2839	402	206	243		32	6045
Hickory nut	0	1	0	0	0		0	1
Huckleberry	44	11	0	1	5		0	61
Lemon cf.	0	1	0	0	0		0	1
Malva-like	0	0	0	0	0		0	0
Melon	15	18	21	24	51		17	146
Nightshade family	0	36	0	0	0		0	36
Peach	3	19	0	0	0		1	23
Peanut	7	14	1	1	0		17	40
Pear	27	25	1	3	0		12	68
Pepper,red/chili	40	0	3	0	3		0	46
Persimmon	14	7	14	3	31		2	71
Plum	16	57	6	7	0		3	89
Pokeweed	14	3	0	0	0		1	18
Pondweed cf.	0	0	0	0	0		0	0
Raspberry	5728	2744	152	259	8		7	8898
Sedge	0	0	0	0	0		0	0
Smartweed	0	0	0	0	0		0	0
Smartweed/Dock	0	0	0	0	0		0	0
Spurge	0	5	0	0	0		0	5
Strawberry	9	0	0	0	0		0	9
Thistle-like	0	0	0	0	0		0	0
Tomato	11866	11815	630	64	555		200	25130
Viburnum	0	0	0	0	4		4	8
Walnut	0	5	1	0	0		0	6
Watermelon	87	210	122	166	230		77	892
Unknowns	15		0	0	1		0	16
Unknown nutshell	6	9	0	1	0		0	16

Table 5 OLD TOWN VILLAGE II PRIVY GRAND TOTAL

Names	>2 mm	<2 mm	Total
Apple	54	15	69
Apple/ pear	1223	131	1354
Berries	144	10	154
Brassica	2	1	3
Cheno/Am cf.	0	1	1
Cherry	1587	3	1590
Chestnut	49	0	49
Citrus	14	0	14
Cloves	1	0	1
Coffee bean	14	0	14
Coriander	11	9	20
Cranberry	4	188	192
Crataegus cf.	1	0	1
Cucumber	130	5	135
Cucurbit	8	9	17
Dock	0	2	2
Drupes	9	99	108
Eggplant	2	3	5
Eggshell	118	4	122
Elderberry	0	49	49
Fig/Mulberry	9	599	608
Fishscale	52	36	88
Foxtail/grass	2	31	33
Fungi	2	14	16
Grape	6312	189	6501
Hickory nut	3	0	3
Huckleberry	78	4350	4428
Lemon cf.	1	0	1
Malva-like	1	2	3
Melon	149.5	0	149.5
Nightshade family	69	6	75
Peach	37	0	37
Peanut	42	0	42
Pear	74	0	74
Pepper,red/chili	72	5	77
Persimmon	71	0	71
Plum	100	0	100
Pokeweed	18	2	20
Pondweed cf.	1	10	11
Raspberry	9529	18403	27932
Sedge	0	3	3
Smartweed	1	9	10
Smartweed/Dock	0	3	3
Spurge	5	16	21
Strawberry	10	29	39
Thistle-like	0	4	4
Tomato	31839	2806	34645
Viburnum	12	0	12
Walnut	9	0	9
Watermelon	939.5	14	953.5
Unknowns	22	36	58
Unknown nutshell	24	0	24
Unknown sesame-lik	2	0	2
Beetle parts	3	3	6
Insect/larvae	77	205	282
Fruit skins	224	30	254
Misc. beads/stones	2	8	10

cf.=compares well with

possible means similar but not that

Table 6. Total of the samples sorted from the 15 g samples from the < 2mm size material

Seeds and...	Level 8 <2 mm 4 samples	Level 7 < 2mm 3 samples	Level 6 <2 mm 1 sample	Level 5 <2 mm 2 samples	Level 4 <2 mm Quantity	Level 3 <2 mm Quantity	Level 2 <2 mm Quantity	Tally <2 mm Quantity
Apple	12	0	0	0	not sorted	This	not sorted	12
Apple/ pear	80	40	2	9	in this size	level	in this size	131
Berries	10	0	0	0		not		10
Brassica	2	0	1	0		sorted		3
Cheno/Am cf.	1	0	0	0				1
Cherry	3	0	0	0				3
Chestnut	0	0	0	0				0
Citrus	0	0	0	0				0
Cloves	0	0	0	0				0
Coffee bean	0	0	0	0				0
Coriander	3	3	1	0				7
Cranberry	63	118	5	2				188
Crataegus	0	0	0	0				0
Cucumber	5	0	0	0				5
Cucurbit	1	8	0	0				9
Dock	2	0	0	0				2
Drupes	24	61	0	4				89
Eggplant	0	0	3	0				3
Eggshell	0	2	0	2				4
Elderberry	23	19	2	0				44
Fig/Mulberry	186	298	12	40				536
Fishscale	1	18	8	9				36
Foxtail/Grass	21	1	0	3				25
Fungi	6	1		3				10
Grape	106	23	28	16				173
Hickory nut	0	0	0	0				0
Huckleberry	1219	1341	85	600				3245
Lemon cf.	0	0	0	0				0
Malva-like	0	1	0	1				2
Melon	0	0	0	0				0
Nightshade family	1	3	1	1				6
Peach	0	0	0	0				0
Peanut	0	0	0	0				0
Pear	0	0	0	0				0
Pepper,red/chili	0	2	1	0				3
Persimmon	0	0	0	0				0
Plum	0	0	0	0				0
Pokeweed	2	0	0	0				2
Pondweed cf.	1	0	0	0				1
Raspberry	7445	8352	840	1740				18377
Sedge	2	0	0	0				2
Smartweed	8	1	0	0				9
Smartweed/Dock	0	3	0	0				3
Spurge	12	1	2	1				16
Strawberry	17	5	2	2				26
Thistle-like	2	0	1	1				4
Tomato	1173	839	481	240				2733
Viburnum	0	0	0	0				0
Walnut	0	0	0	0				0
Watermelon	3	5	1	5				14
Unknowns	28	6	0	0				34
Unknown nutshell	0	0	0	0				0

Table 7. Sequence of hierarchy of seed quantities < 2 mm by levels*

Raspberries 7>8>5>6

Cranberry 7>8>6>5

Fig 7>8>5>6

Grape 8>6>7>5

Huckleberry 7>8>5>6

Tomato 8>7>6>5

Watermelon 7=5>6>8 (0)

*See Figure 7a

Table 8

Comparison of Seeds Identified from 19th Century Privy Deposits							
Old Town Village, Alexandria, Va. (McWeeney 1998) Railroad and residential privy		Harpers Ferry, Va.- Upper Wager Block (Halchin, ed. 1994) Hotel Privy-Feature 292		Ashland: Henry Clay's Estate (Scarry in McBride et al. 1993) Upperclass rural household privy			Louisville, Kentucky (Rosen ms) Privy
Fruit		**Fruit**		**Fruit**			**Fruit**
apple,cherry		apple		blackberry/raspberry			apple
citrus		blueberry		blueberry			blackberry/raspberry
cranberry		cherry		cherry			cherry
crataegus		crataegus		grape			elderberry
elderberry		elderberry		melon			grape
fig/mulberry		fig		mulberry			peach
grape		grape		peach			pear
huckleberry		huckleberry		plum			persimmon
lemon		pear		strawberry			plum
melon		plum		watermelon			strawberry
peach		raspberry					
pear		serviceberry (cf.)					
persimmon		strawberry					
plum		watermelon					
raspberry/blackberry							
strawberry							
watermelon							
Vegetables		**Vegetables**		**Vegetable**			**Vegetable**
cucumber		cucumber		celery			tomato
cucurbit unspecified		squash		celery family			Nightshade family
eggplant		tomatillo		corn			squash
mustard family		tomato		Capsicum pepper			corn
peppers				squash/gourd			bean
tomato				tomato			
Condiments	**Nutshell**	**Condiments**	**Nutshell**	**Condiments**	**Nutshell**		**Condiments**
citrus	chestnut	coriander	absent	coffee	butternut		coffee
clove	hickorynut	mint			hickory		**Nutshell**
coffee	peanut	motherwort			peanut		hazelnut (n=1)
coriander	walnut	mustard cf.			walnut		
mustard		red pepper					
red pepper		sage					
		coffee					
Weeds		**Weeds**		**Weeds**			**Weeds**
Brassica		Brassica (black mustard)		Cheno/Am			buffalo burr
Cheno/Am		campion		catchfly			goosegrass
dock		catchfly		Composite family			nightshade (black)
grass		Cheno/Am (goosefoot/pigweed)		grass			pokeweed
mallow		chickweed		purslane			
pokeweed		clover		smartweed			
pondweed (poss.).		dock		Nightshade family			
sedge		flax cf.		Holly			
smartweed		mallow					
spurge		pokeweed					**Grains**
thistle-like		purslane					corn
		smartweed					barley
		wood sorrel					buckwheat
							wheat
Miscellaneous		**Miscellaneous**		**Miscellaneous**			
fish bone		fish bone		fruit skins			
fish scales		fish scales					
eggshell		eggshell					
teeth (incisor)		teeth					
bones		bones					
glass		glass					
coal		coal					
charcoal		charcoal					
beads	**Trees**	beads	**Trees**	**Trees**			**Trees**
clothing hook	(charcoal & wood)	corset hook	eastern redcedar	holly			beech
straight pin	eastern redcedar	buckle	maple				chestnut
insects	oak	insect	oak				eastern redcedar
sclerotia	pine	sclerotia					elm
carbon (coal) ball		carbon ball					hickory
gun shot							maple
nails							oak
matchsticks							pine
							sycamore
							walnut, black

Figure 1 OTV Privy >2mm Total by Level

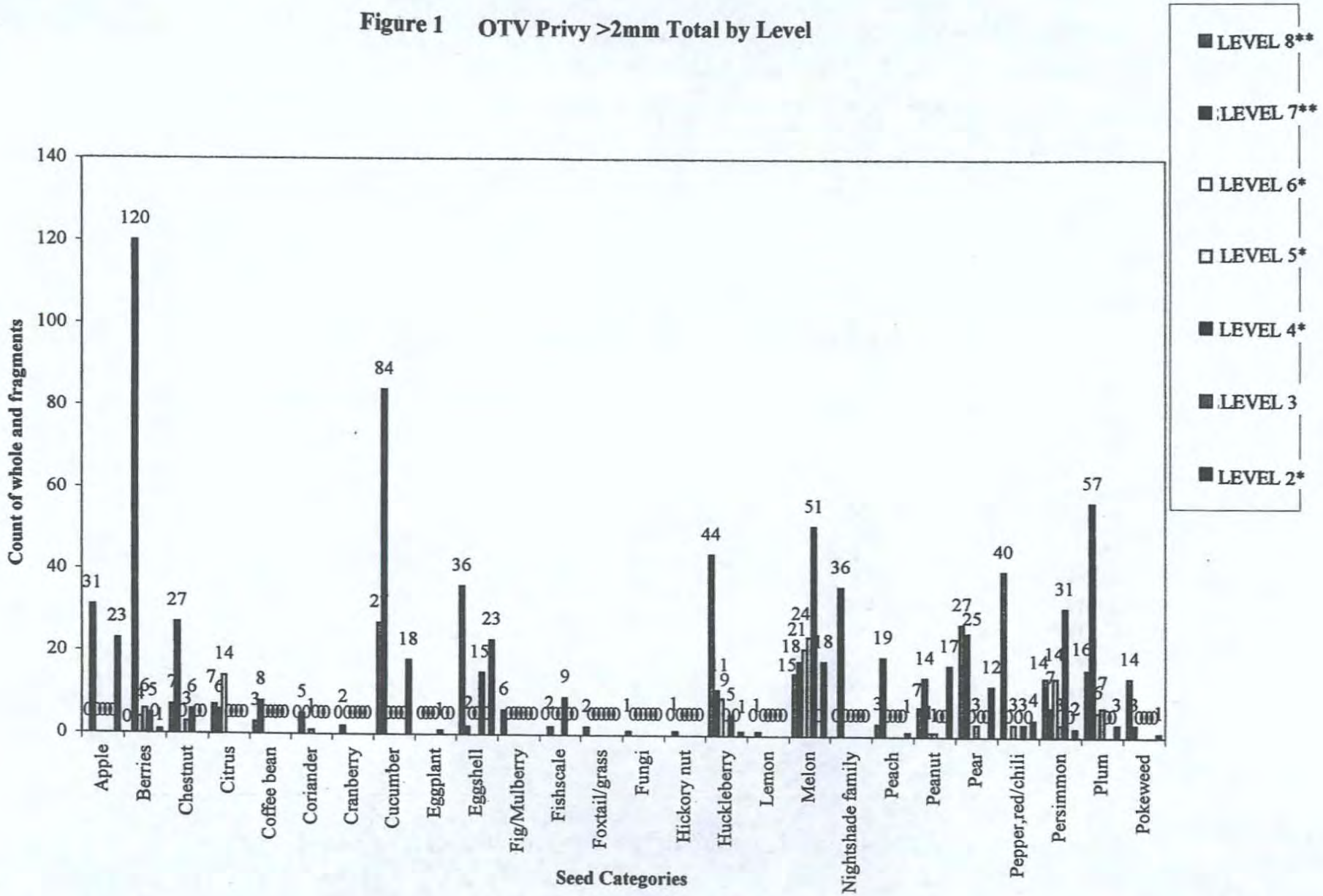


Figure 2 OTV Privy Major Seed Categories > 2mm Totals

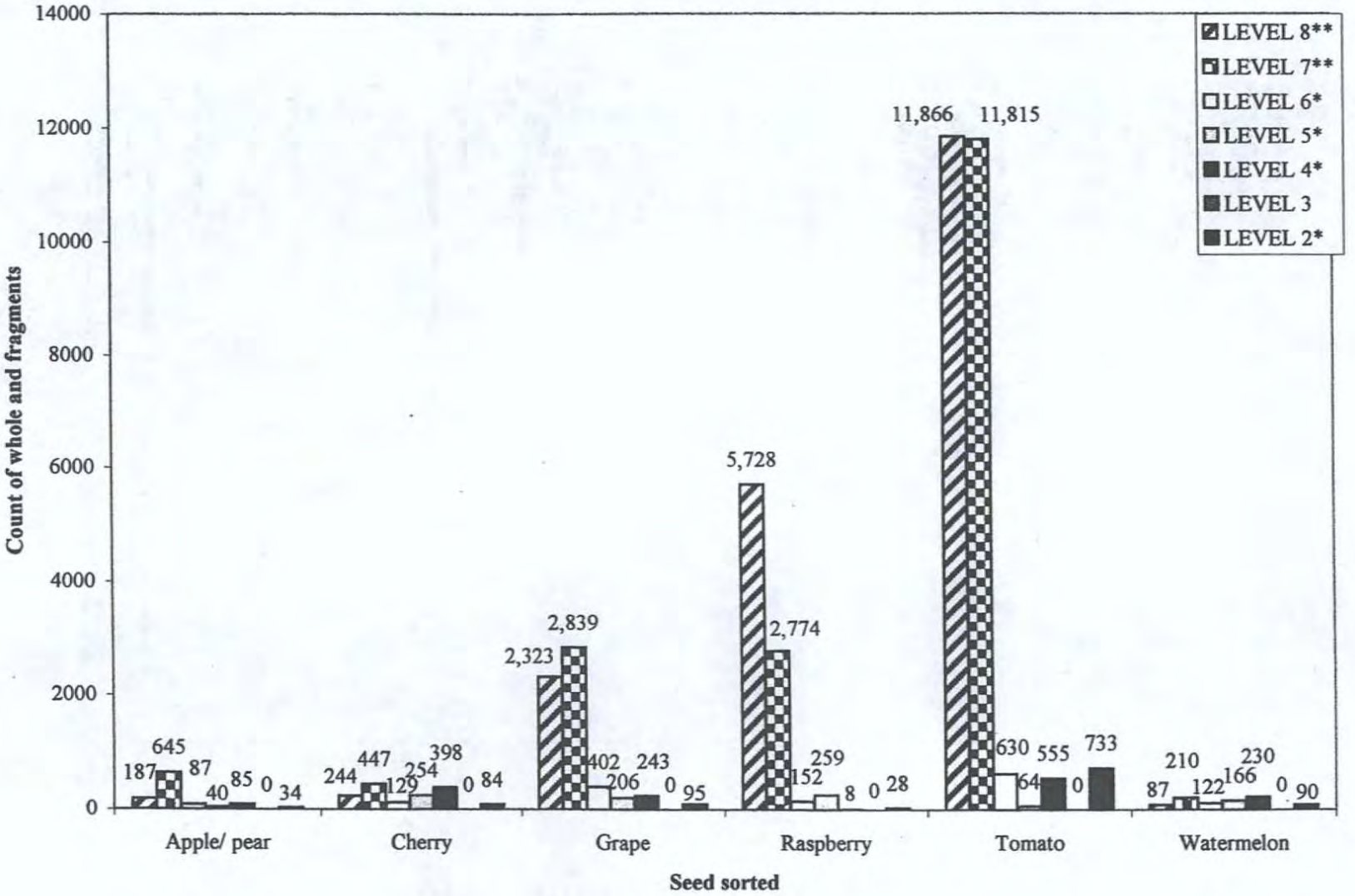


Figure 3 OTV Privy Total Minor Seed Categories < 2mm Size

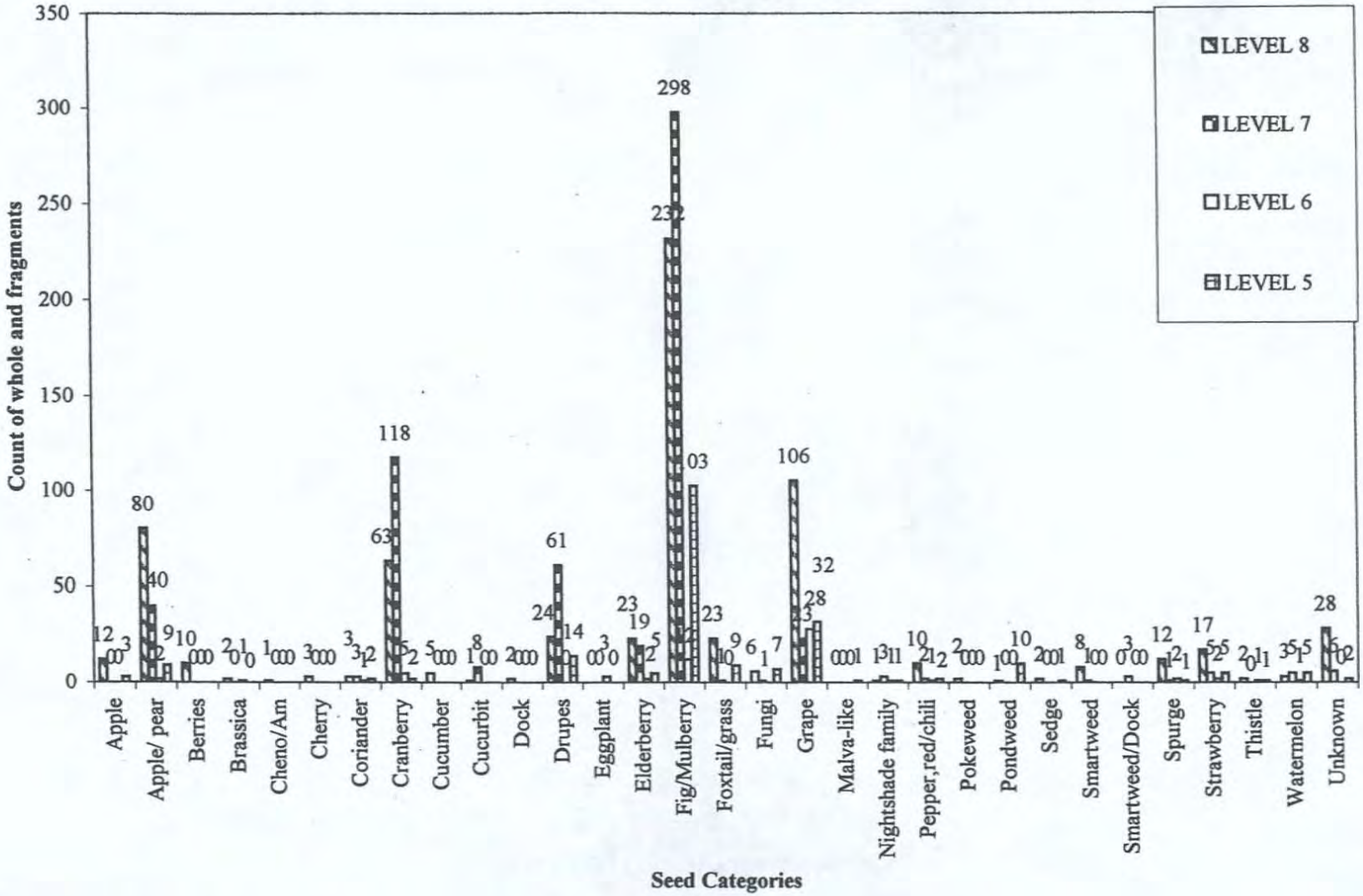


Figure 3a OTV Privy Large Quantity Seed Categories in < 2mm Size

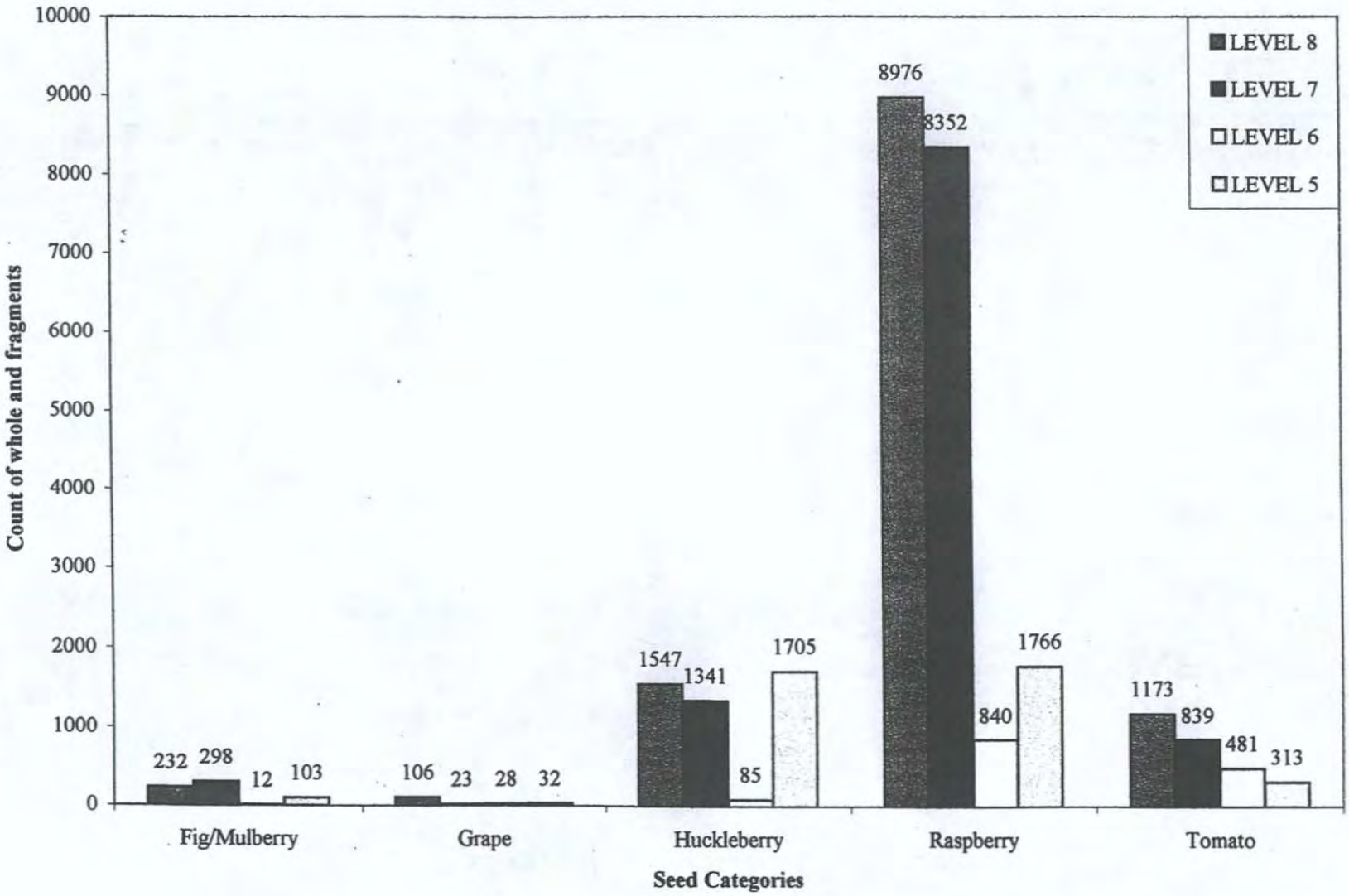


Figure 3b OTV Privy-Foods Represented in <2mm Minor Seeds

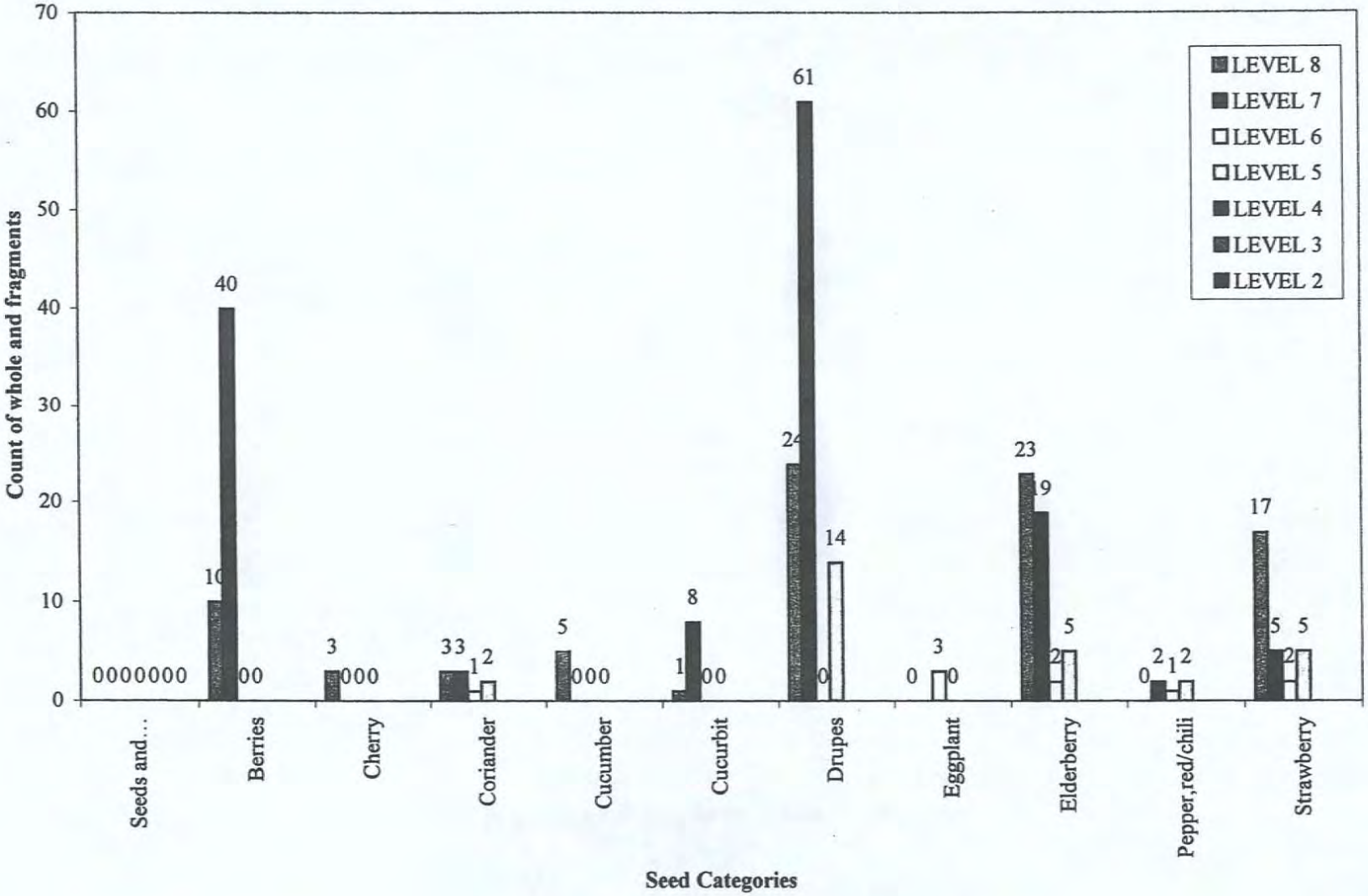


Figure 3c OTV Privy Raspberries in <2mm Sample by Level

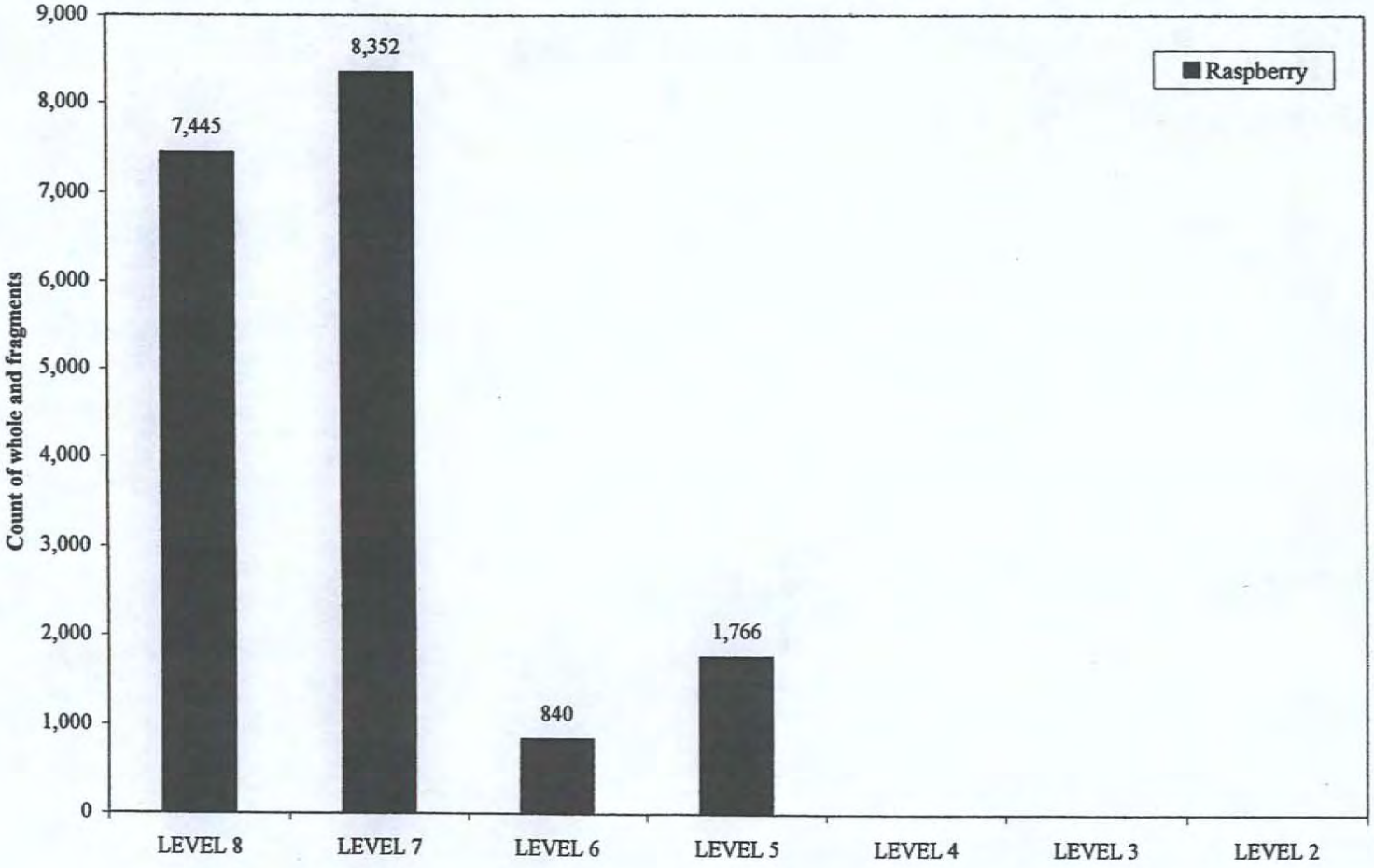


Figure 4 OTV Privy Large Pit/Seeds by Level

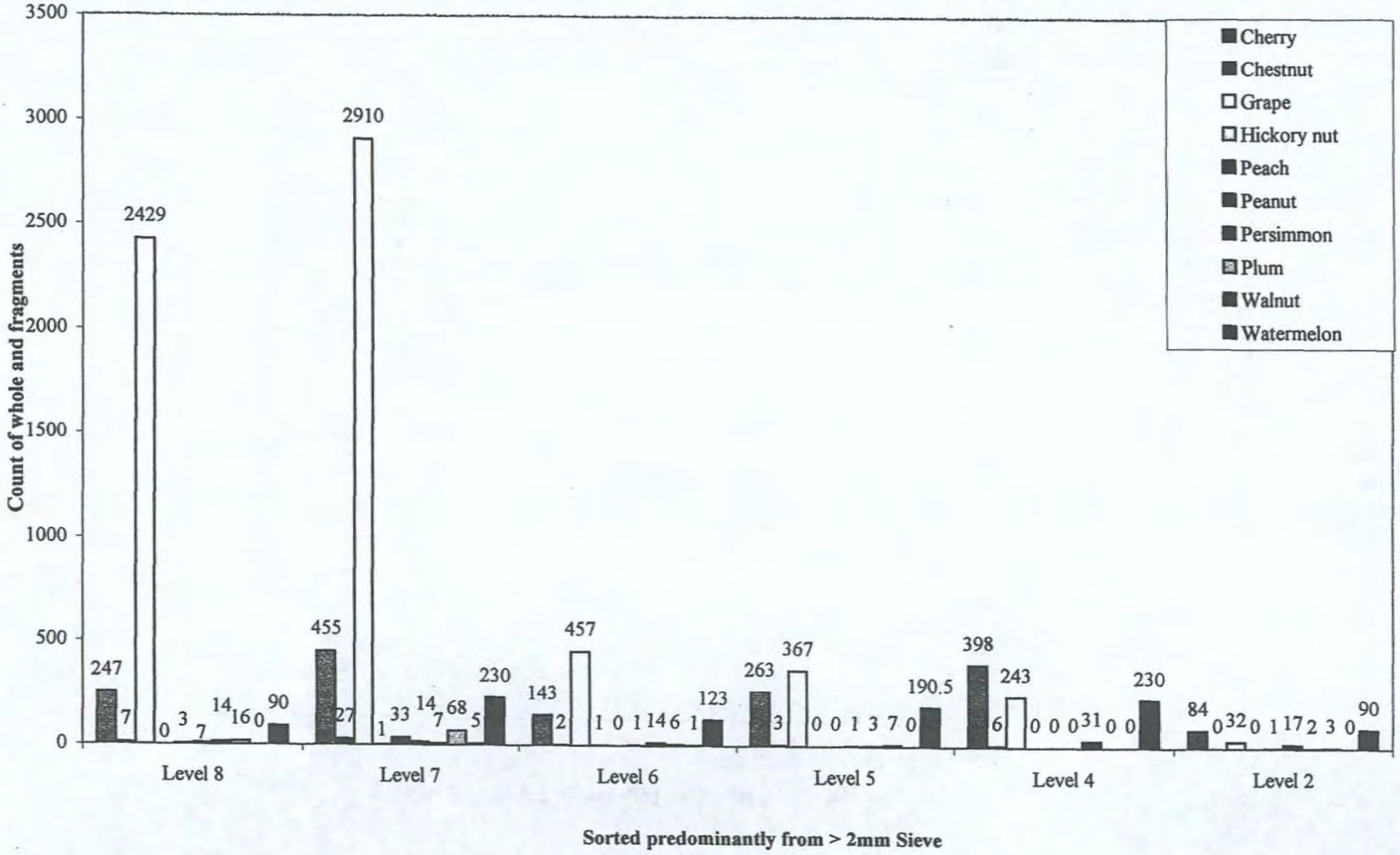


Figure 5 OTV Privy Total Nutshell by Category

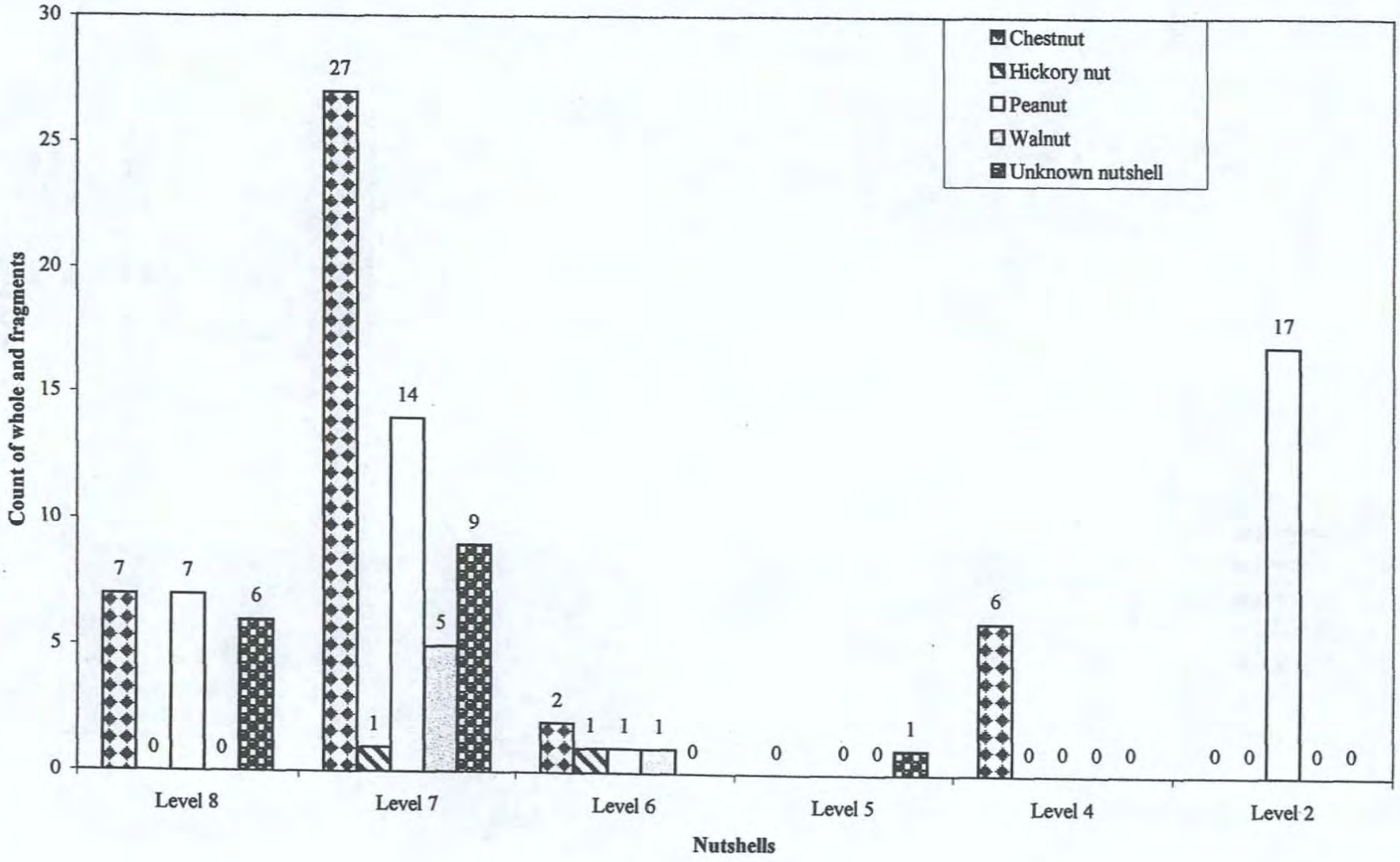


Figure 6 **OTV Privy Total Nutshell by Category**

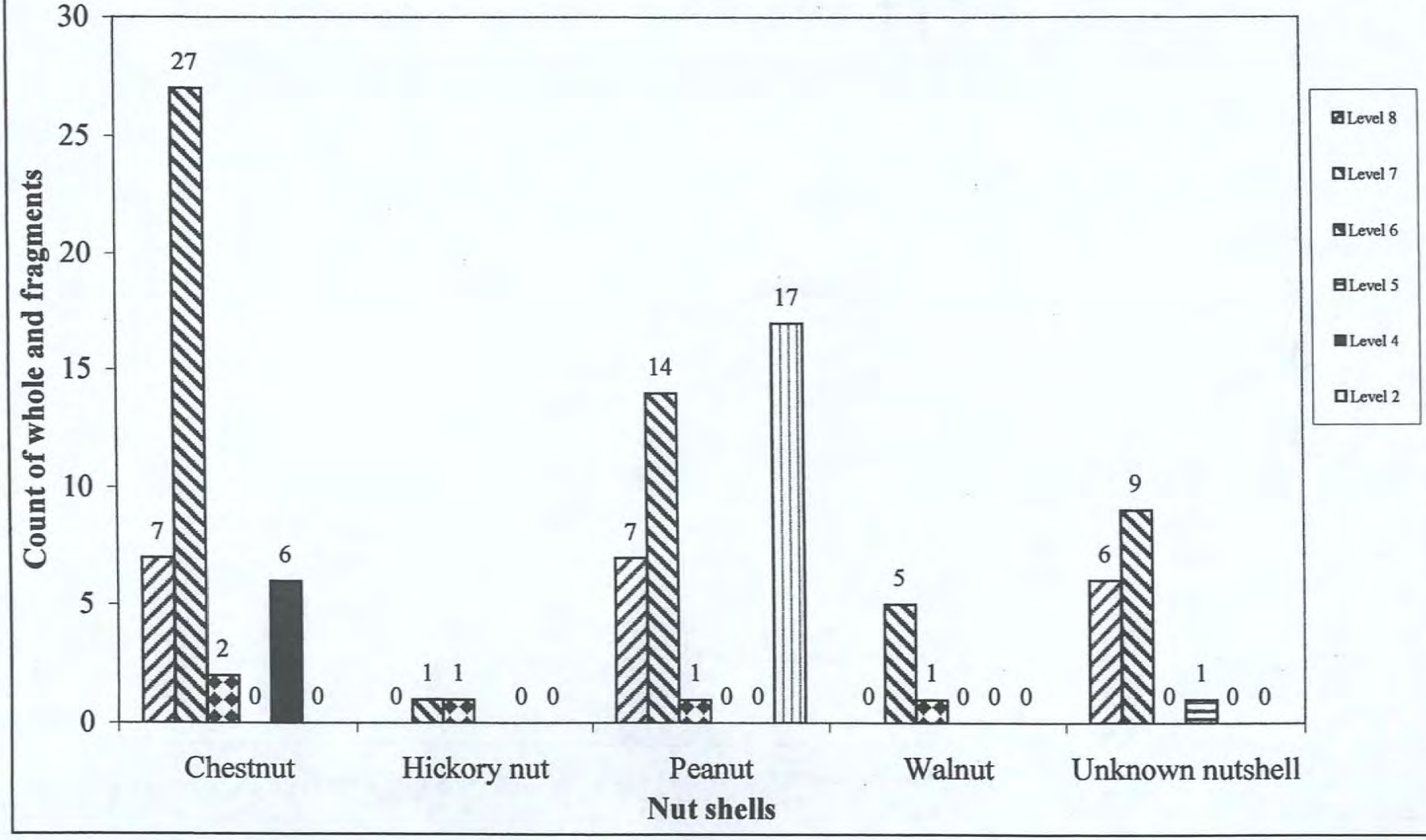


Figure 7 OTV Privy Total < 2mm Size by Category Minus Raspberry

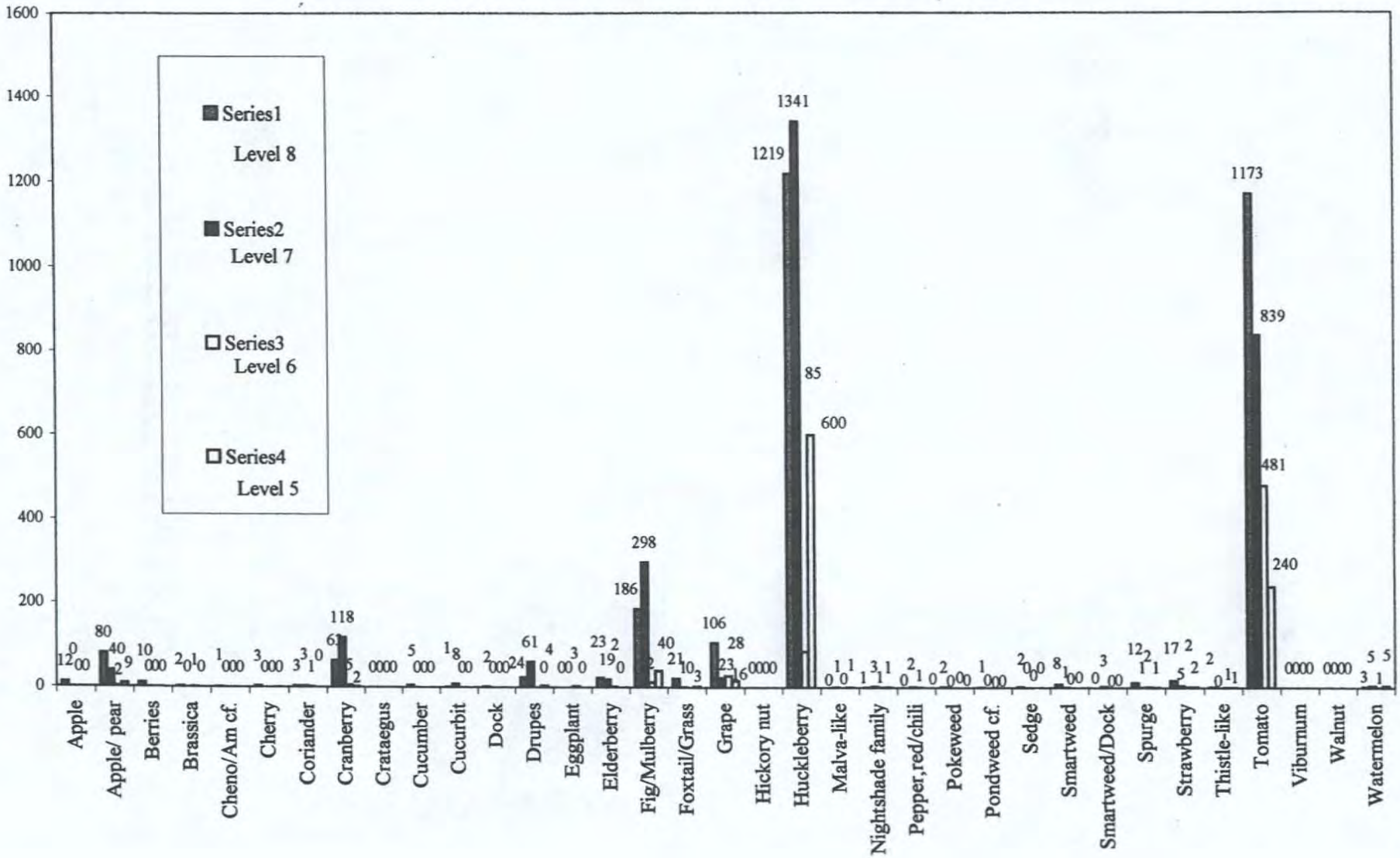


Figure 7a OTV Privy Major Seeds <2mm Compared by Level without Raspberries

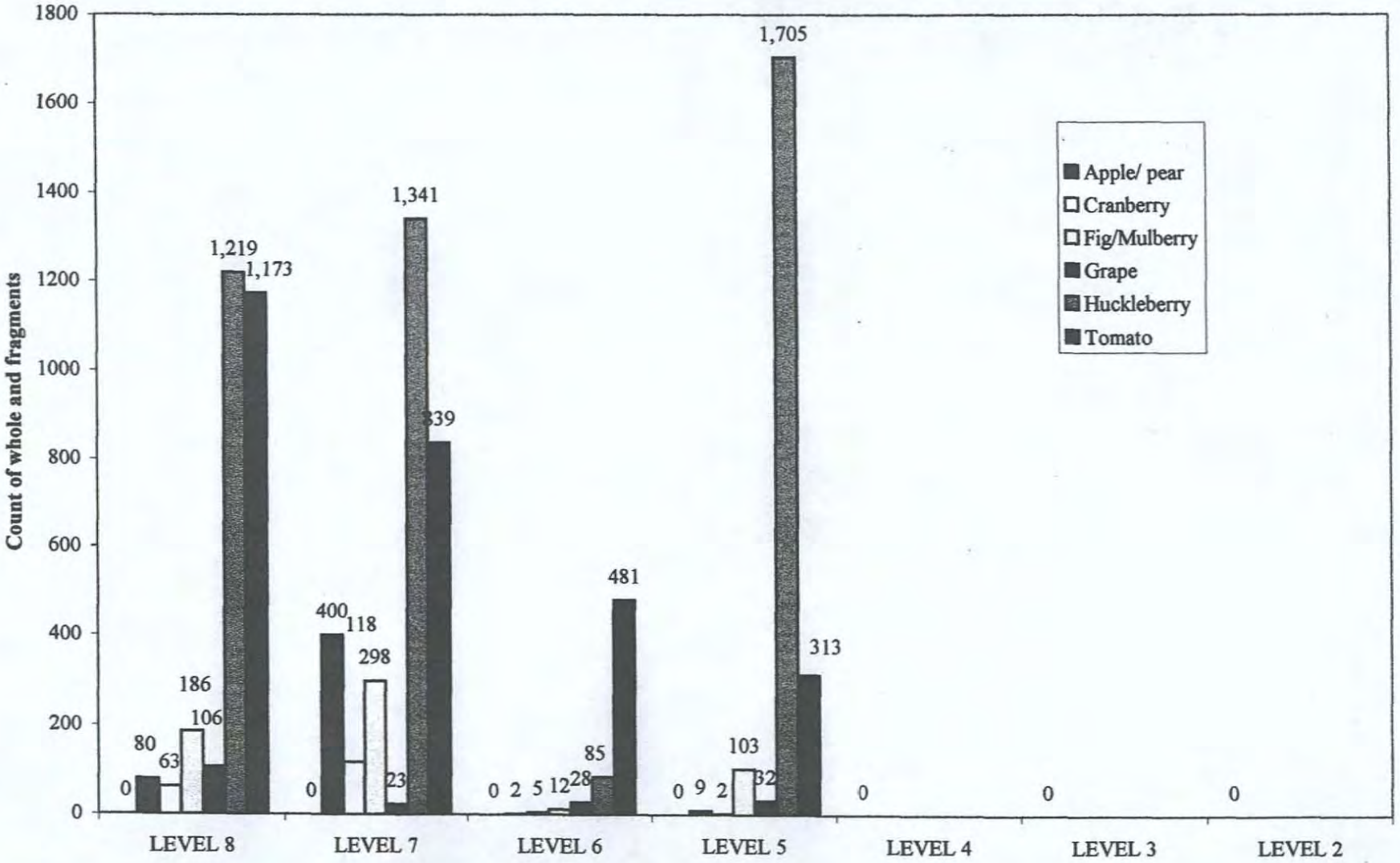
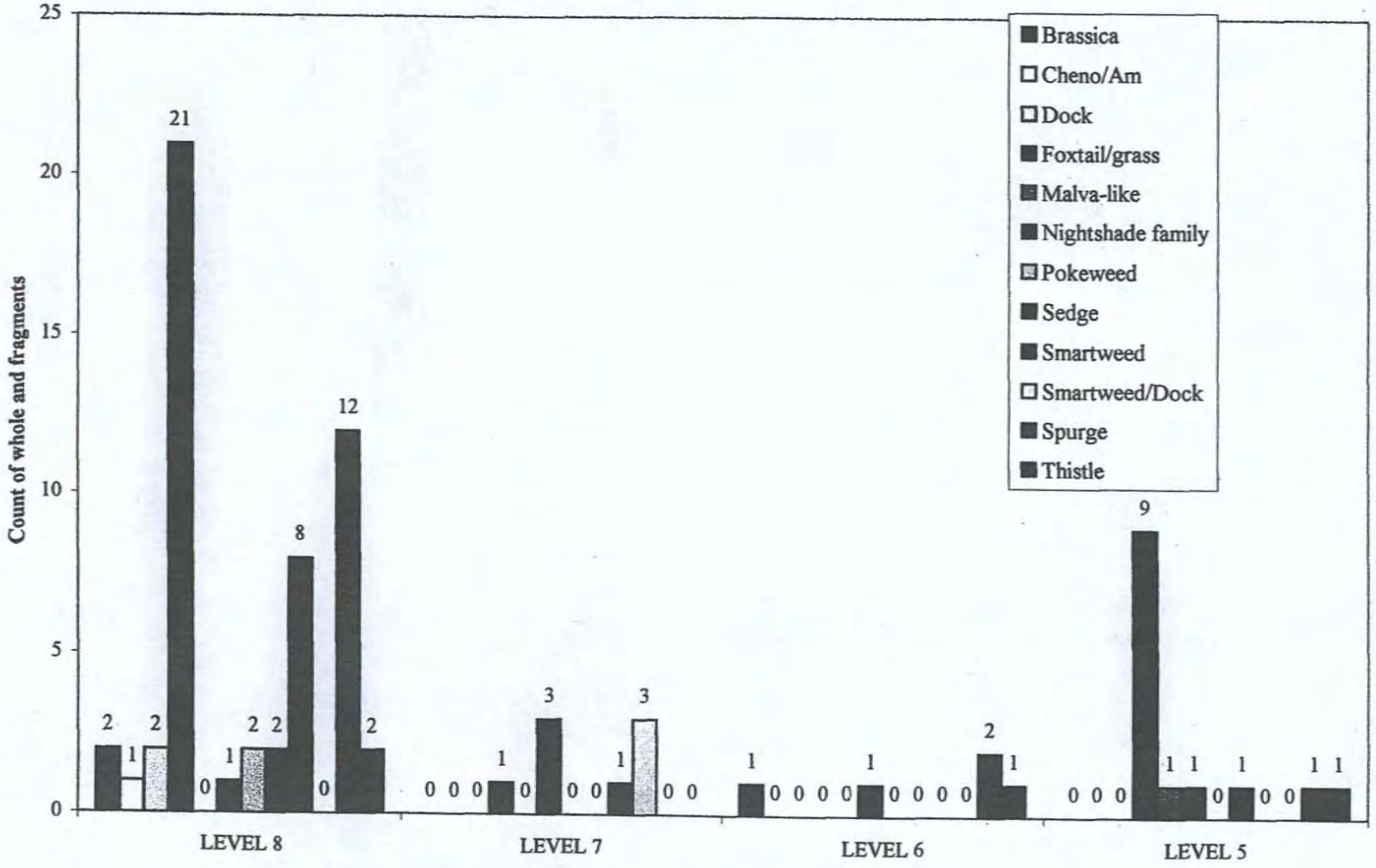
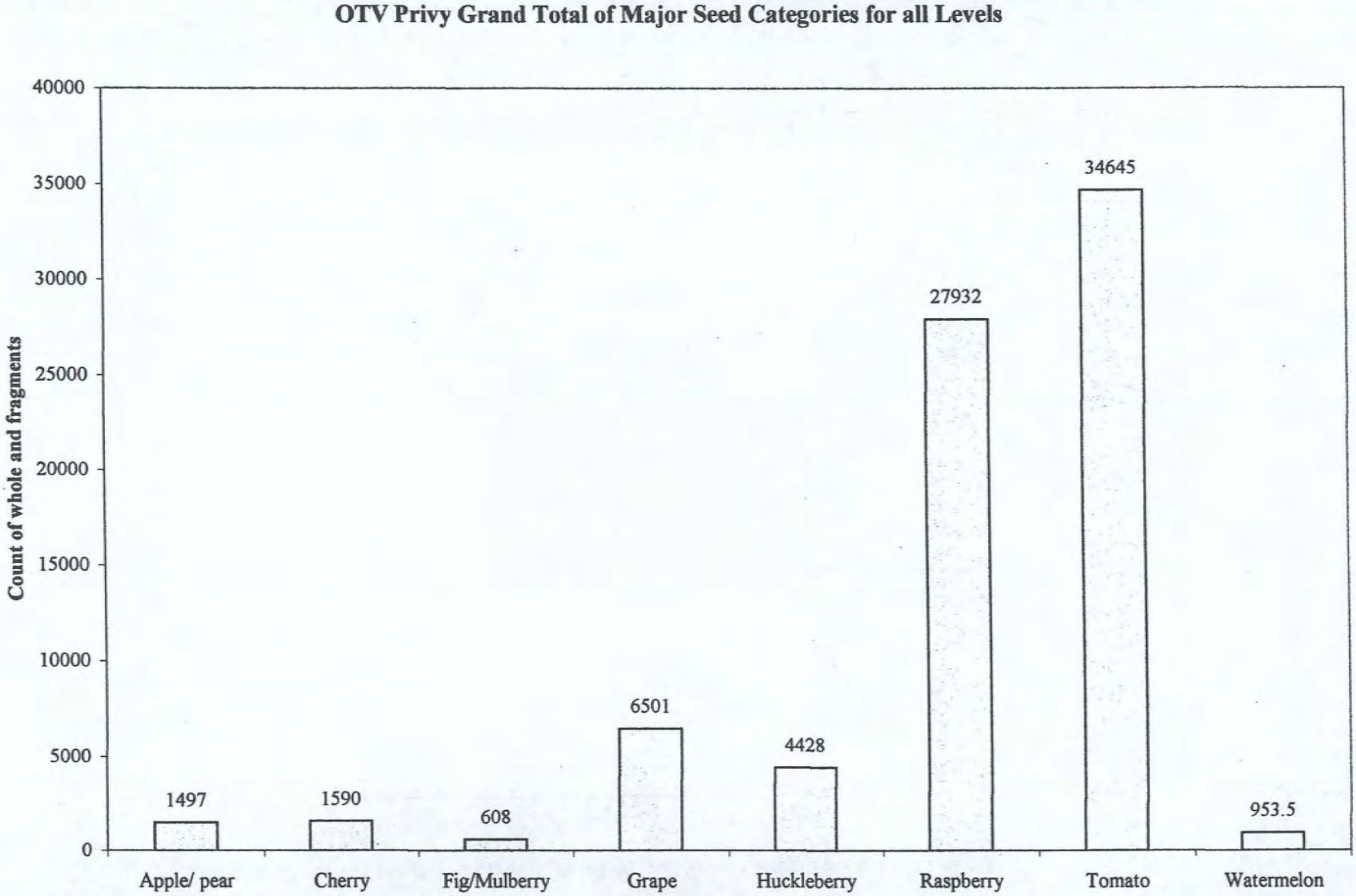


Figure 8 OTV Privy Weed Seeds <2mm

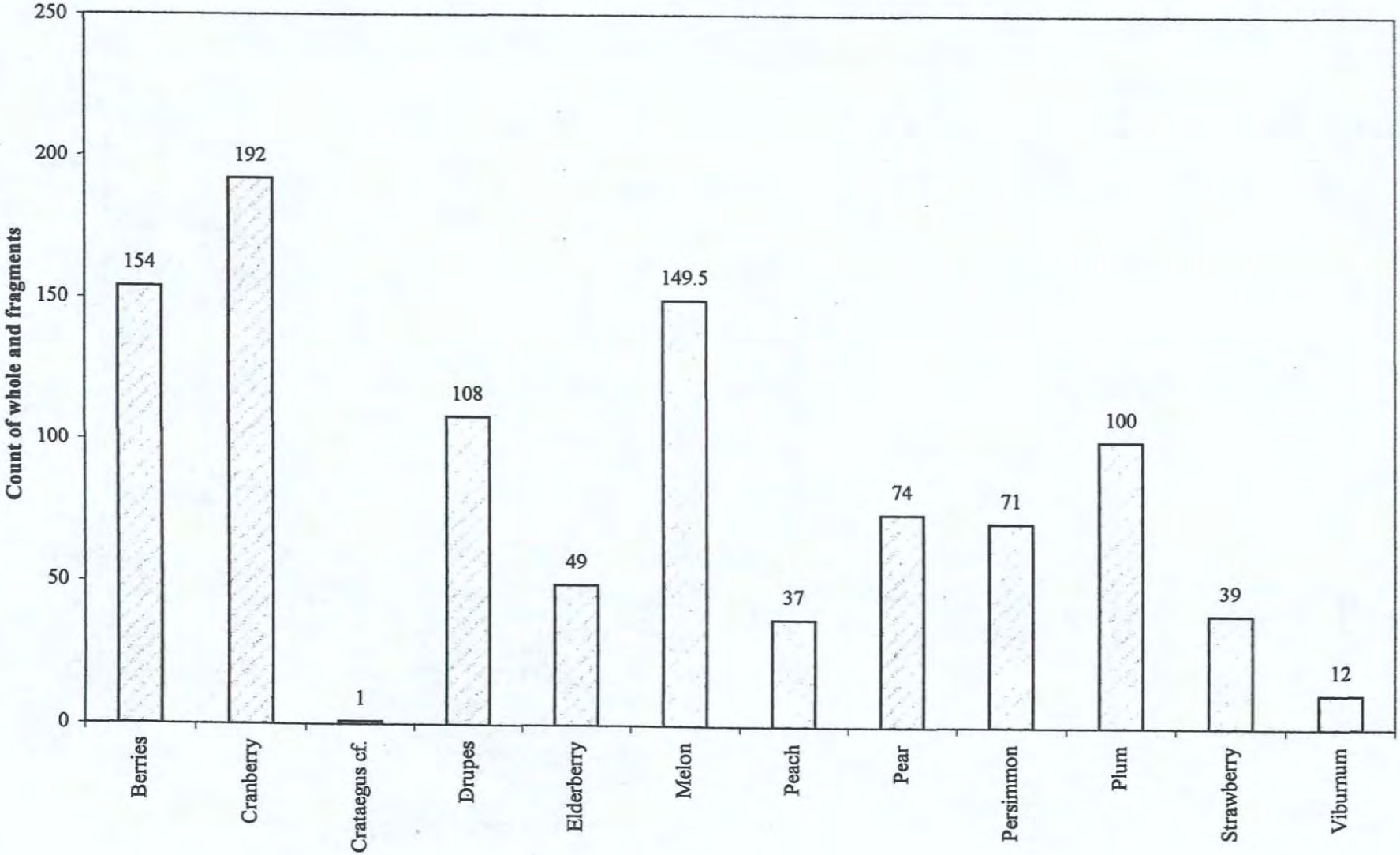


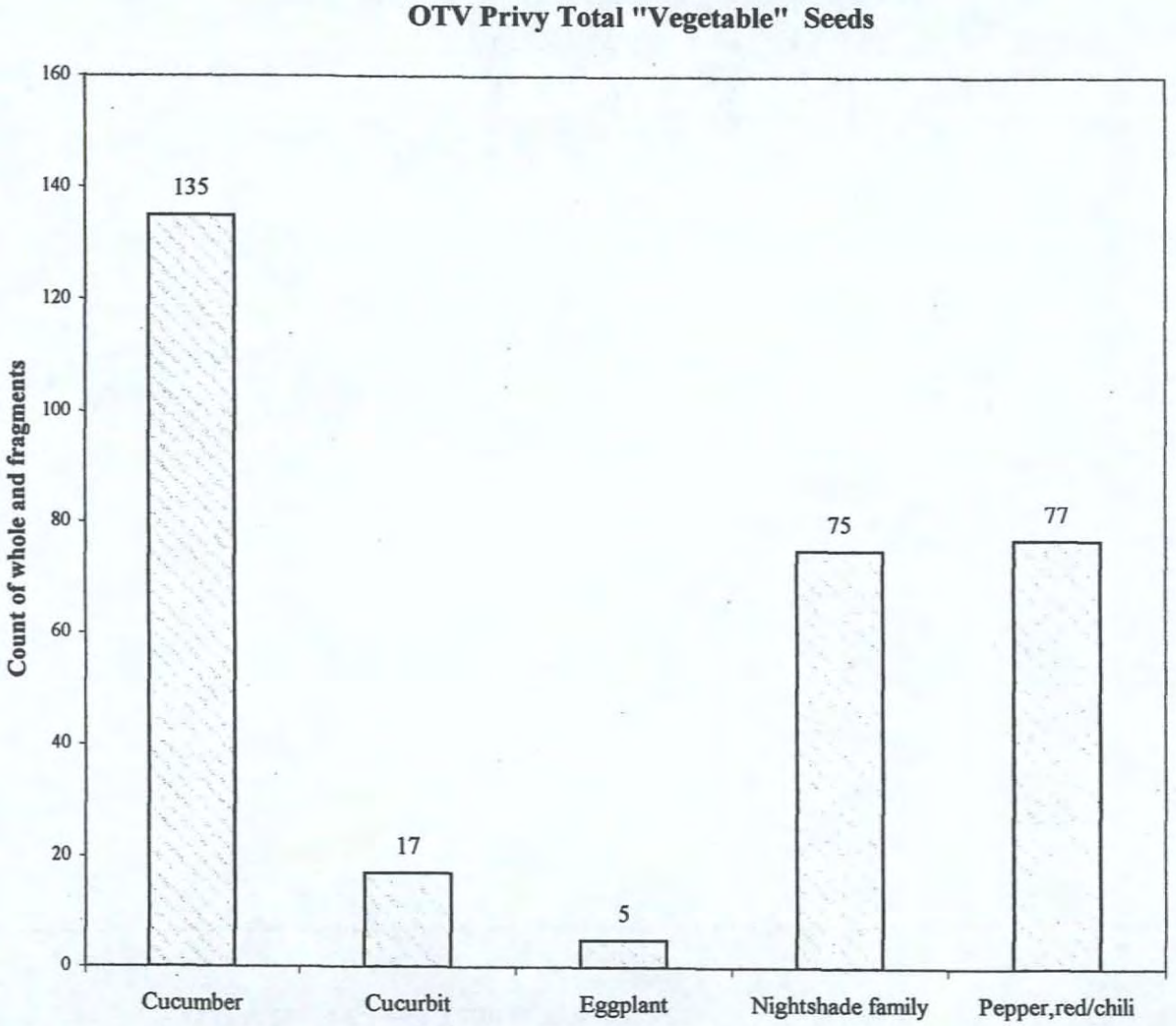
APPENDIX

Worksheets and Charts for Levels 8 - 4 and 2

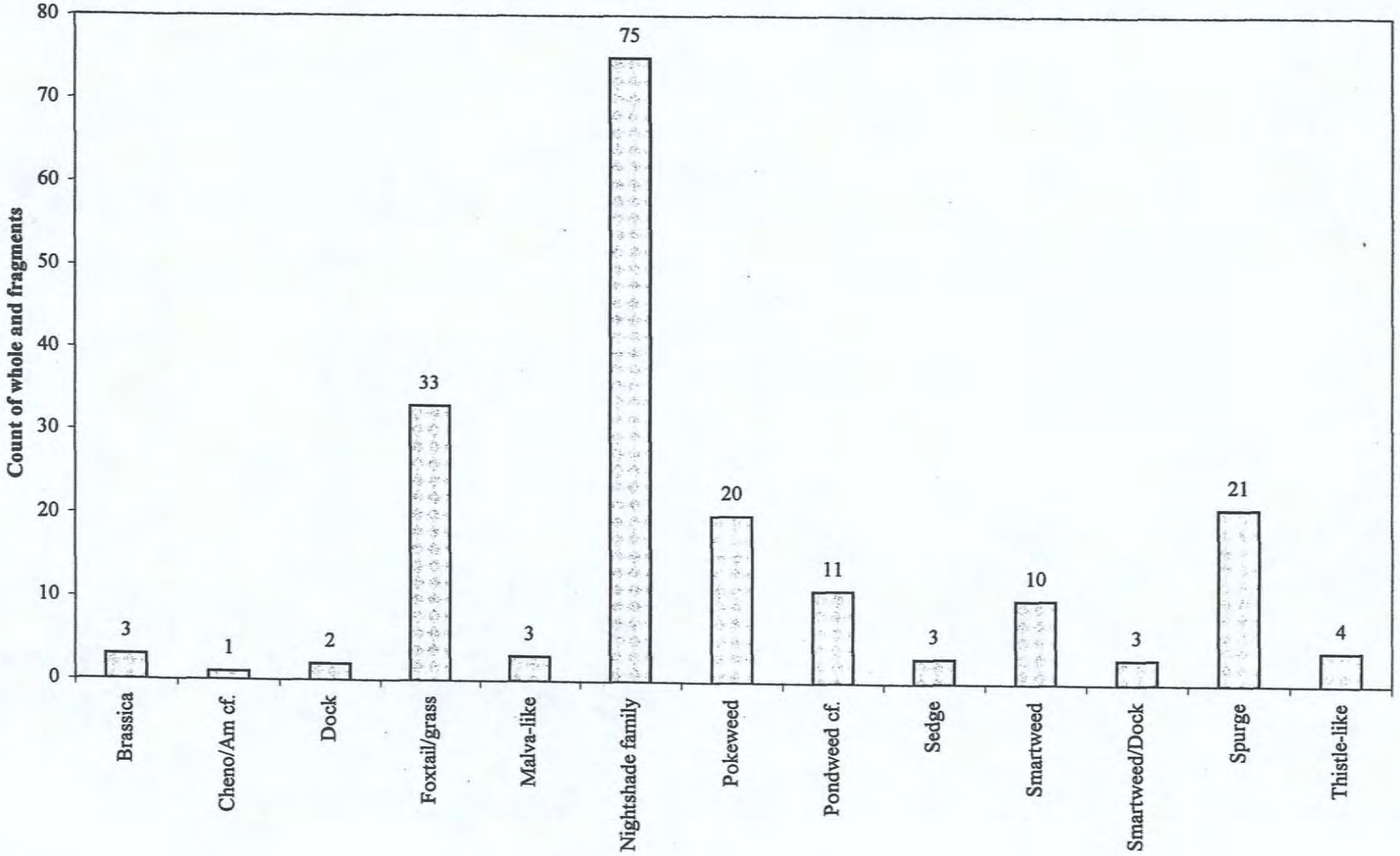

OTV Privy Grand Total of Major Seed Categories for all Levels
Count of whole and fragments
40000
35000
30000
25000
20000
15000
10000
5000
0
1497
1590
608
6501
4428
27932
34645
953.5
Apple/ pear
Cherry
Fig/Mulberry
Grape
Huckleberry
Raspberry
Tomato
Watermelon

OTV Privy Grand Total Minor Seed Categories for all Levels

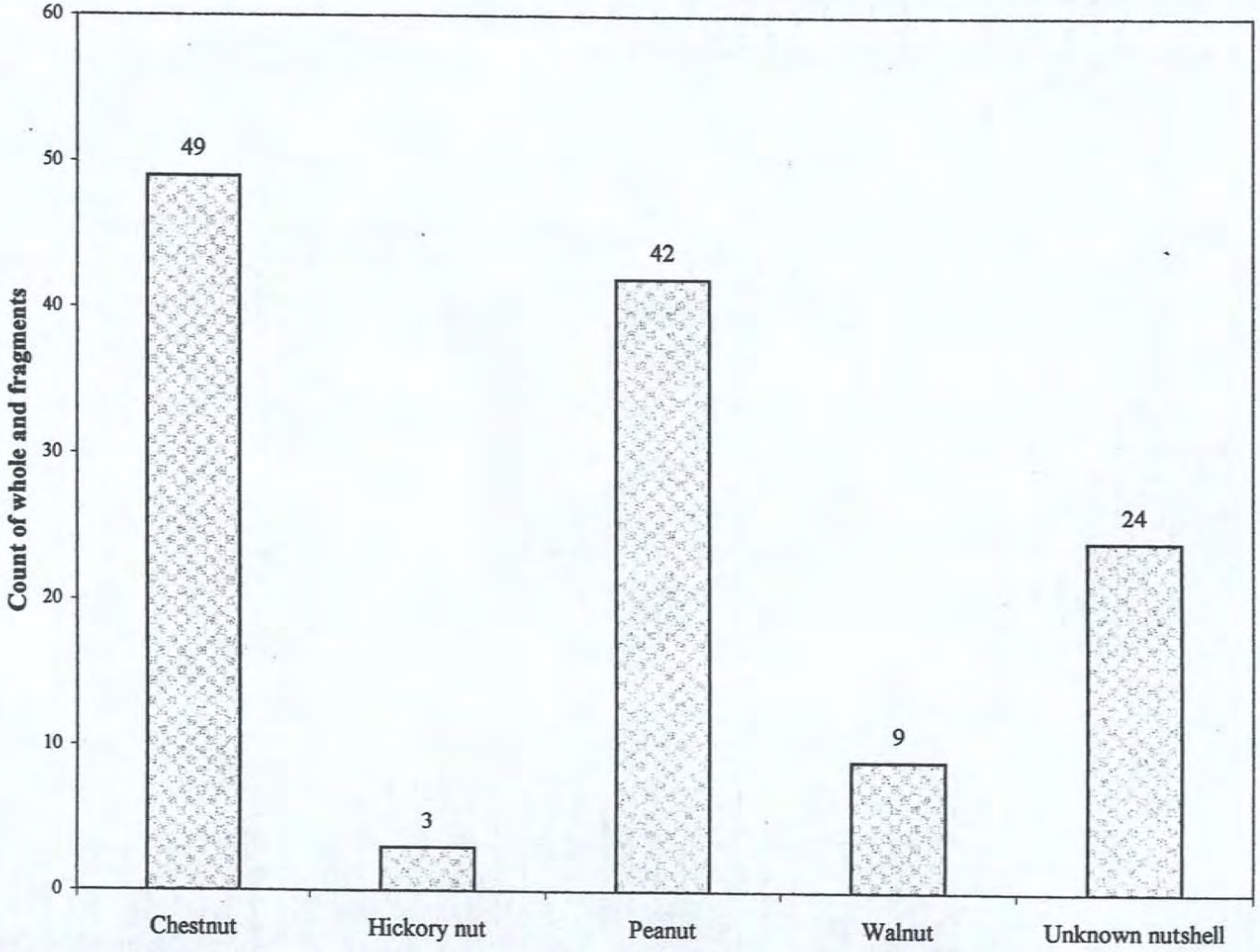



OTV Privy Total "Vegetable" Seeds
Count of whole and fragments
160
140
120
100
80
60
40
20
0
135
17
5
75
77
Cucumber
Cucurbit
Eggplant
Nightshade family
Pepper,red/chili

OTV Privy Grand Total of Weed Seeds



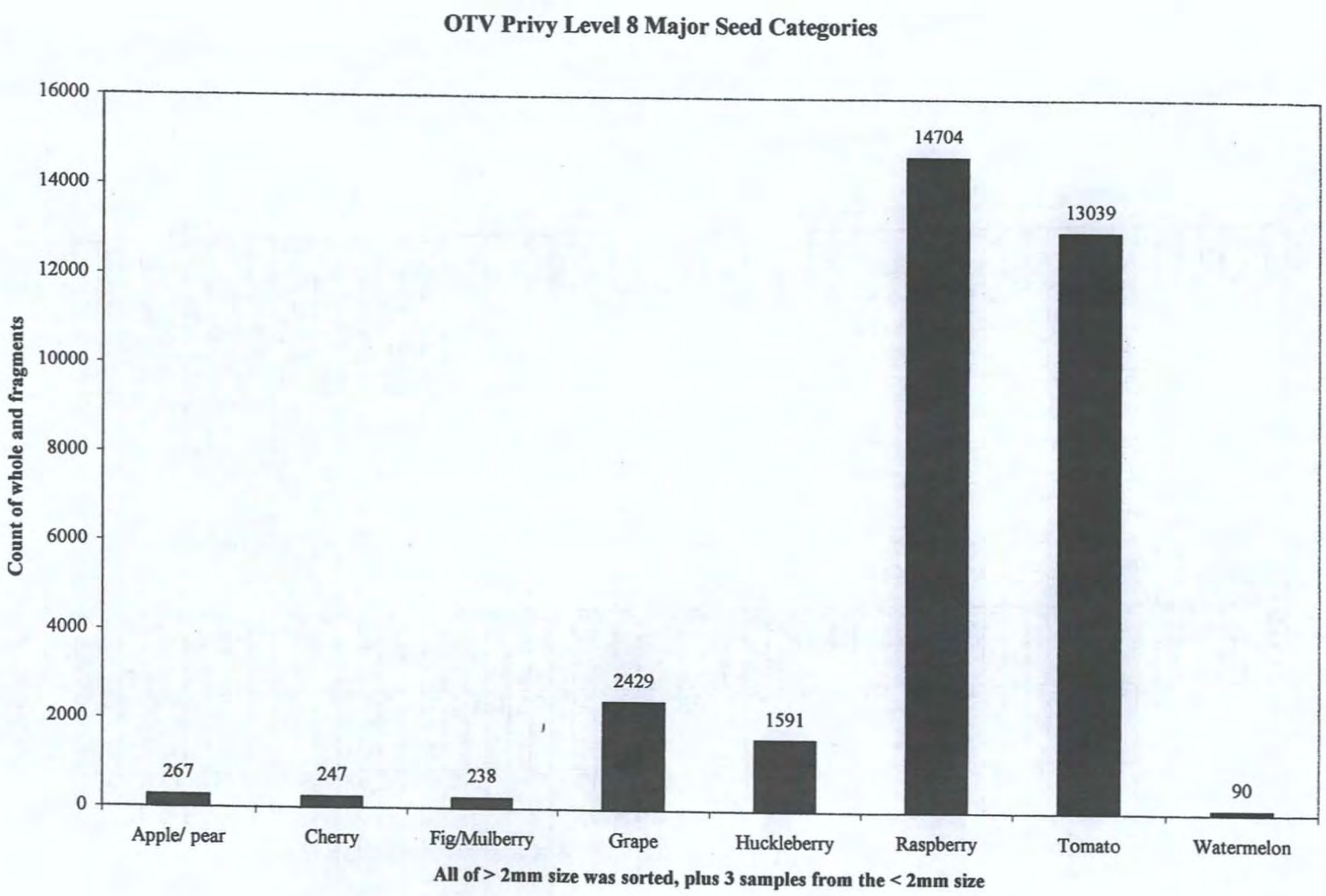
OTV Privy Total Nutshell

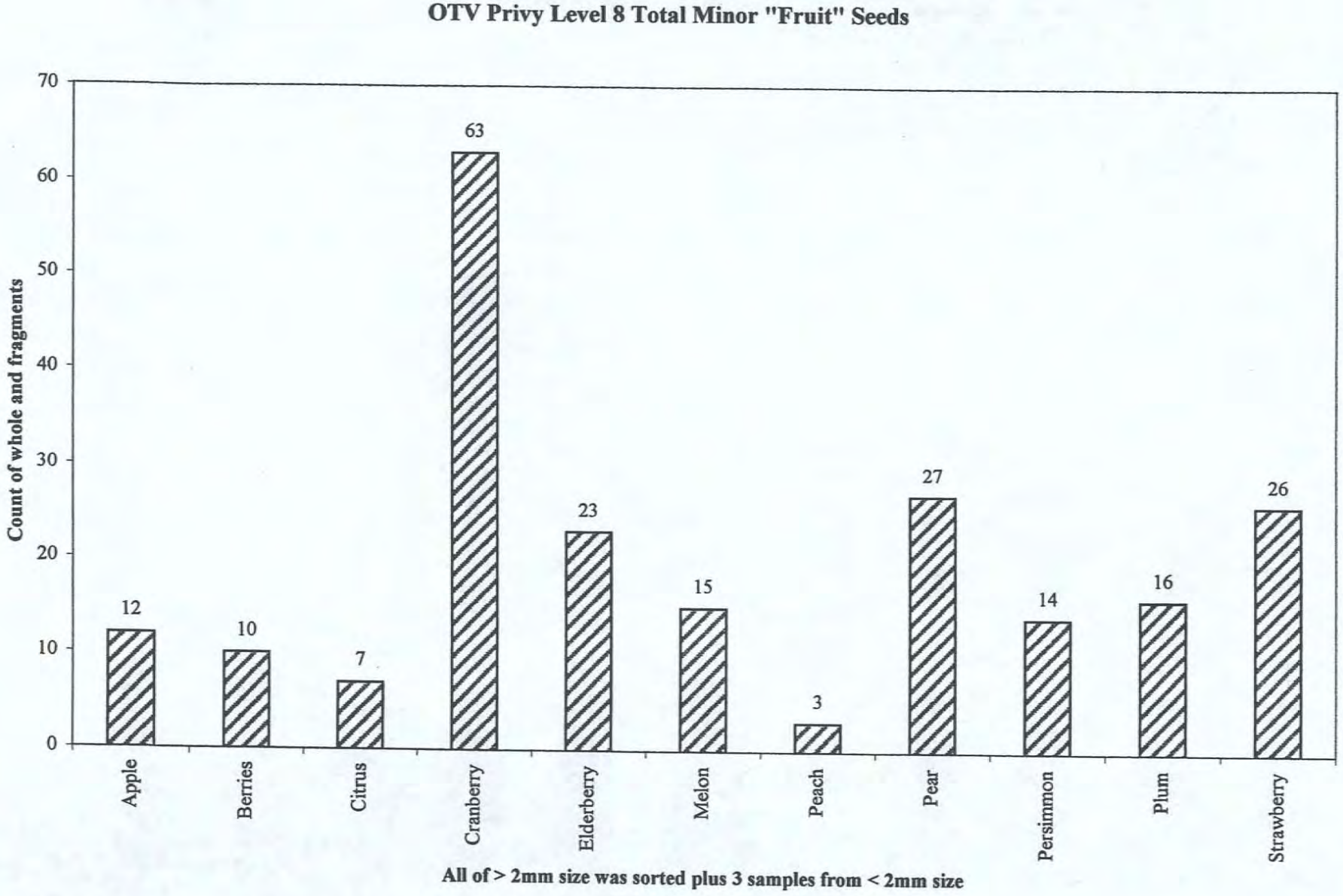


Old Town Village Privy: Level 8

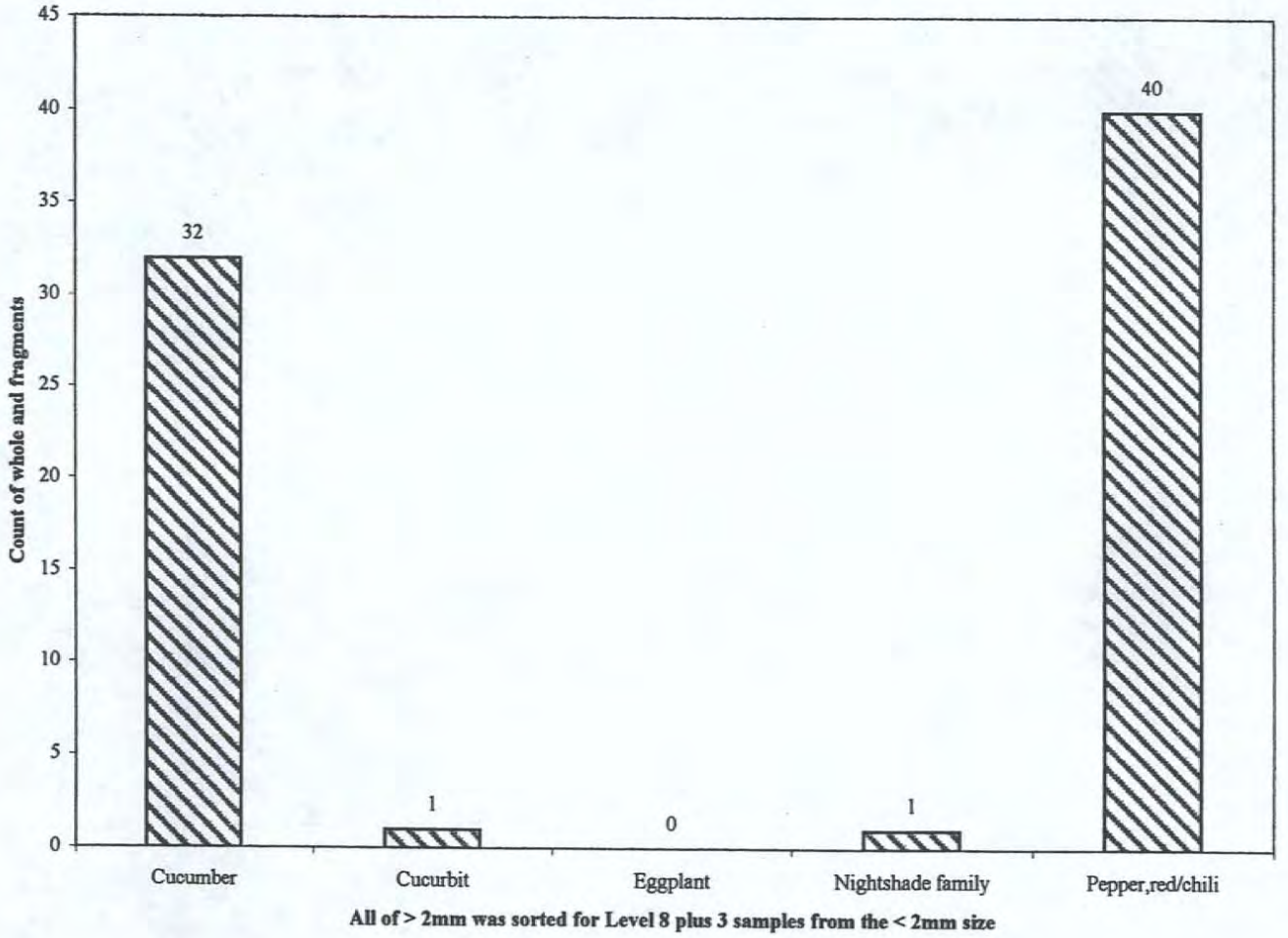
	Initial Sort		Sample 1		Sample 2		Sample 3		Scan	
	>2 mm		15 g < 2 mm		15 g < 2 mm		15 g < 2 mm		< 1 mm	
Seeds and...	Quantity	Wt (g)	Quantity	Wt (g)	Quantity	Wt (g)	Quantity	Wt (g)	Quantity	Wt. (g)
Apple	0	0	0	0	0	0	12	< 0.1	0	0
Apple/ pear	187	5.1	10	< 0.1	70	0.5	0	0	0	0
Berries	0	0	3	< 1	0	0	7	< 1	0	0
Brassica	0	0	2	< 0.05	0	0	0	0	0	0
Cheno/Am cf.	0	0	1	< 0.05	0	0	0	0	0	0
Cherry	244	31.9	1	< 0.1	2	< 0.1	0	0	0	0
Chestnut	7	1.17	0	0	0	0	0	0	0	0
Citrus	7	0.1	0	0	0	0	0	0	0	0
Cloves	0	0	0	0	0	0	0	0	0	0
Coffee bean	3	0.2	0	0	0	0	0	0	0	0
Coriander	0	0	1	< 0.01	2	< 0.05	0	0	0	0
Cranberry	0	0	13	< 0.1	47	0.04	3	< 0.01	0	0
Crataegus cf.	0	0	0	0	0	0	0	0	0	0
Cucumber	27	0.75	0	0	5	< 0.1	0	0	0	0
Cucurbit	0	0	0	0	1	< 0.05	0	0	0	0
Dock	0	0	2	0.03	0	0	0	0	0	0
Drupes	0	0	9	< 0.1	9	< 0.5	6	< 0.5	0	0
Eggplant	0	0	0	0	0	0	0	0	0	0
Eggshell	36	< 0.6	0	0	0	0	0	0	0	0
Elderberry	0	0	7	< 0.1	13	0.13	3	< 0.1	0	0
Fig/Mulberry	6	< 0.1	33	< 0.1	140	0.1	13	< 0.1	0	0
Fishscale	0	0	1	< 0.01	0	0	0	0	0	0
Foxtail/Grass	2	< 0.05	6	< 0.05	15	< 0.1	0	0	0	0
Fungi	1	< 0.1	1	< 0.05	5	< 0.1	0	0	0	0
Grape	2323	52.75	20	< 0.1	86	< 0.5	0	0	0	0
Hickory nut	0	0	0	0	0	0	0	0	0	0
Huckleberry	44	0.1	242	< 0.1	690	1.05	287	0.43	0	0
Lemon cf.	0	0	0	0	0	0	0	0	0	0
Malva-like	0	0	0	0	0	0	0	0	0	0
Melon	15	0.2	0	0	0	0	0	0	0	0
Nightshade family	0	0	0	0	1	< 0.01	0	0	0	0
Peach	3	4.17	0	0	0	0	0	0	0	0
Peanut	7	0.36	0	0	0	0	0	0	0	0
Pear	27	< 0.5	0	0	0	0	0	0	0	0
Pepper,red/chili	40	0.1	0	0	0	0	0	0	0	0
Persimmon	14	2	0	0	0	0	0	0	0	0
Plum	16	4.12	0	0	0	0	0	0	0	0
Pokeweed	14	< 0.1	0	0	2	< 0.1	0	0	0	0
Pondweed cf.	0	0	1	0.01	0	0	0	0	0	0
Raspberry	5728	12.3	2041	4.3	2111	4.56	3293	7.08	0	0
Sedge	0	0	0	0	2	< 0.1	0	0	0	0
Smartweed	0	0	1	< 0.05	7	< 0.1	0	0	0	0
Smartweed/Dock	0	0	0	0	0	0	0	0	0	0
Spurge	0	0	0	0	12	0.24	0	0	0	0
Strawberry	9	< 0.01	16	< 0.05	1	< 0.01	0	0	0	0
Thistle-like	0	0	0	0	2	< 0.05	0	0	0	0
Tomato	11866	17.8	278	0.2	493	0.4	402	0.55	89	0.13
Viburnum	0	0	0	0	0	0	0	0	0	0
Walnut	0	0	0	0	0	0	0	0	0	0
Watermelon	87	2.5	0	0	3	< 0.1	0	0	0	0
Unknowns	15	< 1			21	< 0.5	7	< 1	0	0
Unknown nutshell	6	0.3	0	0	0	0	0	0	0	0
Waste		1026.4		11.3		8.2		7		

Scanned		TALLY LEVEL 8					
15 g < 2 mm				Level 8		Wt Tally	
Quantity	Wt (g)	>2 mm	<2 mm	Tally-All	Tally-Wt	rounded	Seeds and...
0	0	0	12	12	#VALUE!	0.09	Apple
0	0	187	80	267	#VALUE!	5.59	Apple/ pear
0	0	0	10	10	#VALUE!	2	Berries
0	0	0	2	2	#VALUE!	0.04	Brassica
0	0	0	1	1	#VALUE!	0.04	Cheno/Am cf.
0	0	244	3	247	#VALUE!	32	Cherry
0	0	7	0	7	1.17	1.17	Chestnut
0	0	7	0	7	0.1	0.1	Citrus
0	0	0	0	0	0	0	Cloves
0	0	3	0	3	0.2	0.2	Coffee bean
0	0	0	3	3	#VALUE!	0.04	Coriander
0	0	0	63	63	#VALUE!	0.04	Cranberry
0	0	0	0	0	0	0	Crataegus
0	0	27	5	32	#VALUE!	0.8	Cucumber
0	0	0	1	1	#VALUE!	0.04	Cucurbit
0	0	0	2	2	0.03	0.03	Dock
0	0	0	24	24	#VALUE!	1	Drupes
0	0	0	0	0	0	0	Eggplant
0	0	36	0	36	#VALUE!	0.5	Eggshell
0	0	0	23	23	#VALUE!	0.2	Elderberry
46	0.05	6	186	192	#VALUE!	0.2	Fig/Mulberry
0	0	0	1	1	#VALUE!	0.01	Fishscale
2	< 0.05	2	21	23	#VALUE!	0.09	Foxtail/Grass
0	0	1	6	7	#VALUE!	0.1	Fungi
0	0	2323	106	2429	#VALUE!	53	Grape
0	0	0	0	0	0		Hickory nut
328	0.5	44	1219	1263	#VALUE!	2.1	Huckleberry
0	0	0	0	0	0	0	Lemon cf.
0	0	0	0	0	0	0	Malva-like
0	0	15	0	15	0.2	0.2	Melon
0	0	0	1	1	#VALUE!	0.01	Nightshade family
0	0	3	0	3	4.17	4.17	Peach
0	0	7	0	7	0.36	0.36	Peanut
0	0	27	0	27	#VALUE!	0.5	Pear
10	< 0.1	40	0	40	#VALUE!	0.1	Pepper,red/chili
0	0	14	0	14	2	2	Persimmon
0	0	16	0	16	4.12	4.12	Plum
0	0	14	2	16	#VALUE!	0.1	Pokeweed
0	0	0	1	1	0.01	0.01	Pondweed cf.
1531	2.6	5728	7445	13173	30.84	30.84	Raspberry
0	0	0	2	2	#VALUE!	0.05	Sedge
0	0	0	8	8	#VALUE!	0.05	Smartweed
0	0	0	0	0	0	0	Smartweed/Dock
0	0	0	12	12	0.24	0.24	Spurge
0	0	9	17	26	#VALUE!	0.05	Strawberry
0	0	0	2	2	#VALUE!	0.04	Thistle-like
0	0	11866	1173	13039	19.08	19.08	Tomato
0	0	0	0	0	0	0	Viburnum
0	0	0	0	0	0	0	Walnut
0	0	87	3	90	#VALUE!	2.5	Watermelon
0	0	15	28	43	#VALUE!	0.9	Unknowns
0	0	6	0	6	0.3	0.3	Unknown nutshell
			0	0	1052.9	1052.9	Waste


OTV Privy Level 8 Major Seed Categories
Count of whole and fragments
16000
14000
12000
10000
8000
6000
4000
2000
0
267
247
238
2429
1591
14704
13039
90
Apple/ pear
Cherry
Fig/Mulberry
Grape
Huckleberry
Raspberry
Tomato
Watermelon
All of > 2mm size was sorted, plus 3 samples from the < 2mm size

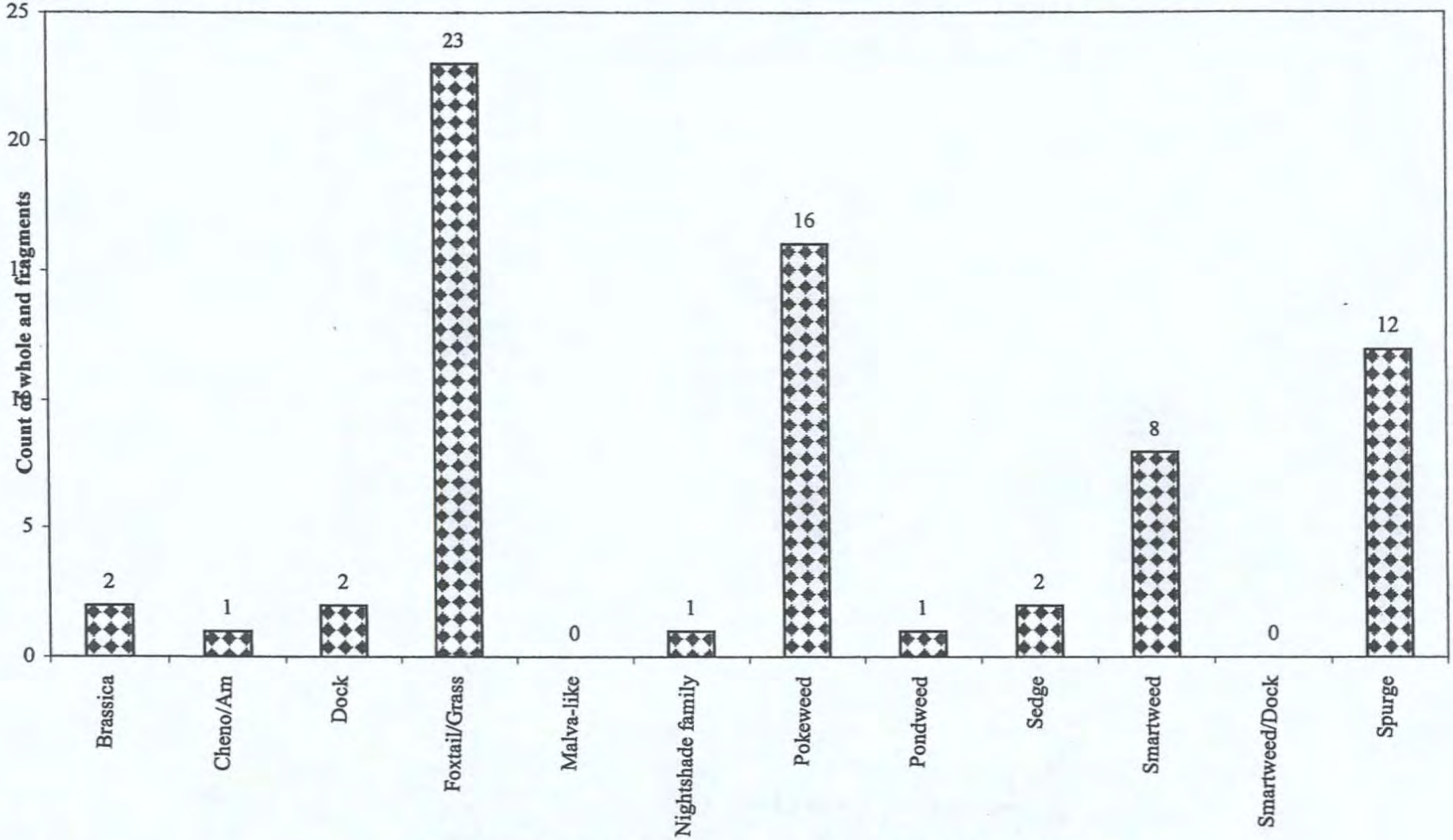

OTV Privy Level 8 Total Minor "Fruit" Seeds
Count of whole and fragments
70
60
50
40
30
20
10
0
12
10
7
63
23
15
3
27
14
16
26
Apple
Berries
Citrus
Cranberry
Elderberry
Melon
Peach
Pear
Persimmon
Plum
Strawberry
All of > 2mm size was sorted plus 3 samples from < 2mm size

OTV Privy Level 8 Minor "Vegetable" Seeds



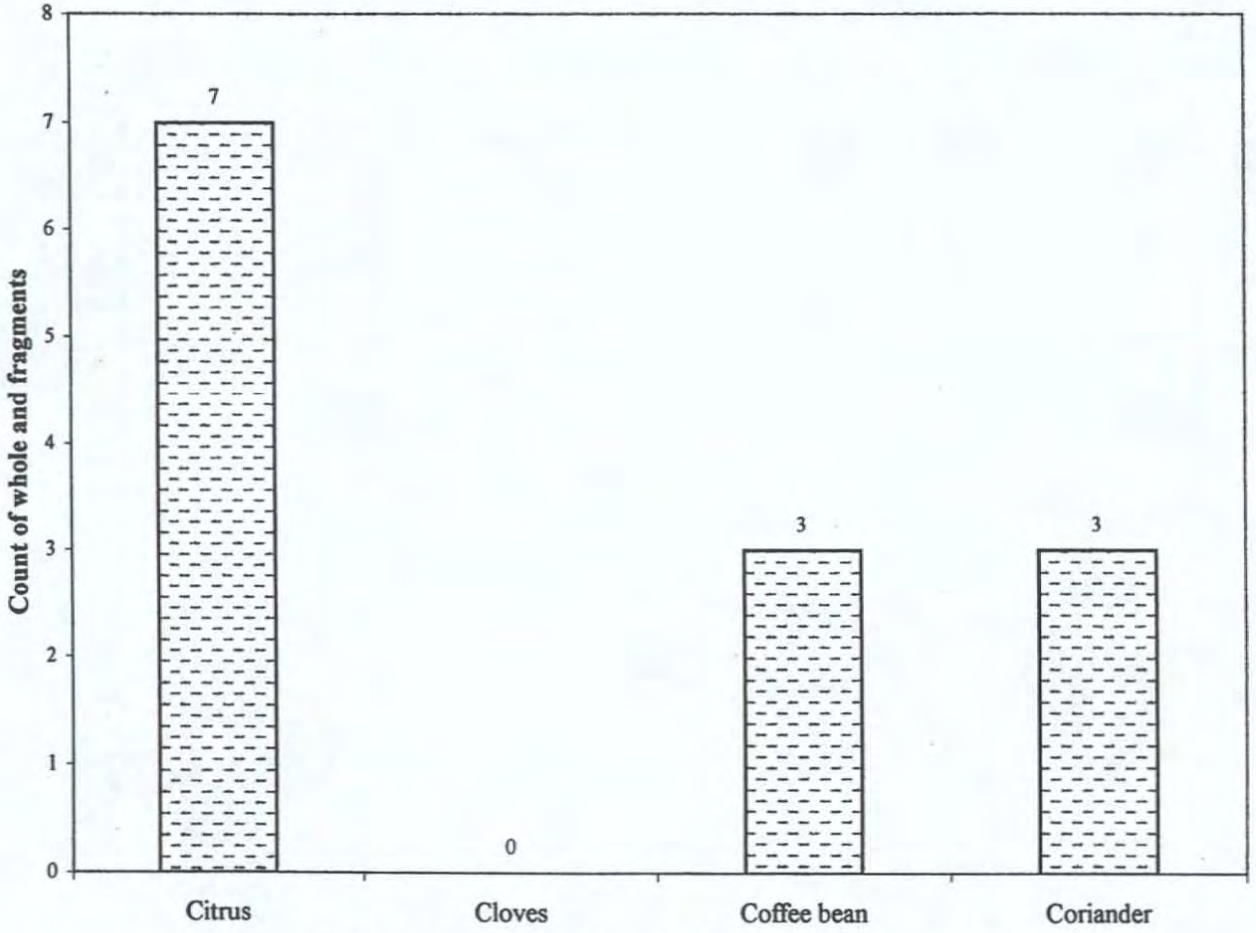
All of > 2mm was sorted for Level 8 plus 3 samples from the < 2mm size

OTV Privy Level 8 Total Weed Seeds



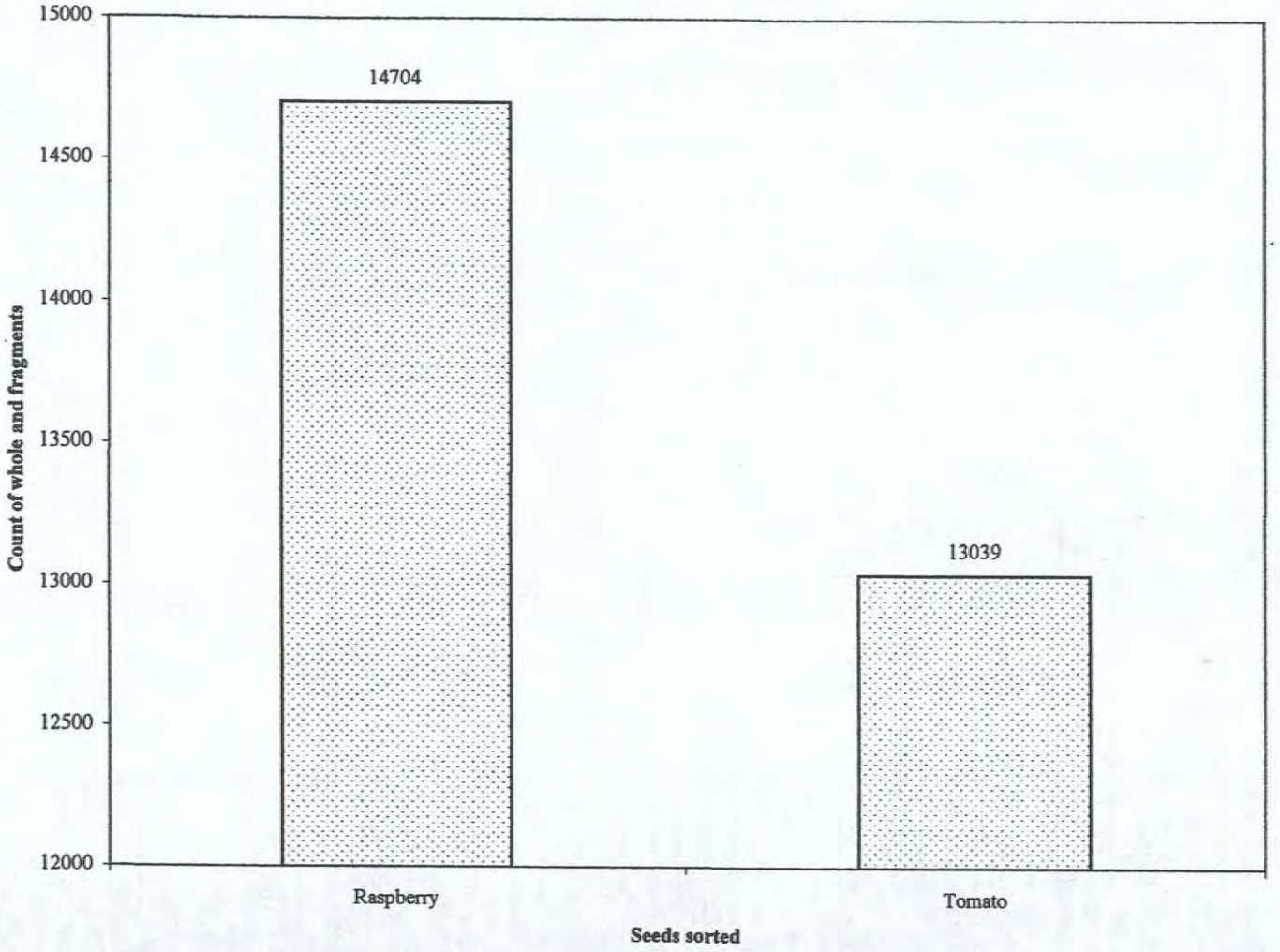
All of > 2mm was sorted for Level 8 plus 3 samples from the < 2mm size

OTV Privy Level 8 Condiments



All of > 2mm size was sorted for Level 8 plus 3 samples from the < 2mm size

OTV Privy Level 8 Raspberry and Tomato Seeds



Old Town Village Privy: Level 7

	Initial Sort >2 mm		Sample 1 > 15 g > 2 mm		Sample 2 > 15 g > 2 mm		Sample 3 > 15 g > 2 mm		Total wt
Seeds and...	Quantity	Wt (g)	Quantity	Wt (g)	Quantity	Wt (g)	Quantity	Wt (g)	>2mm
Apple	31	0.5	0	0	0	0	0	0	0.5
Apple/ pear	645	10.36	13	0.1	24	0.12	14	0.1	10.68
Berries	120	7.24	3	0.1	2	0.1	0	0	7.44
Brassica	0	0	0	0	0	0	0	0	0
Cheno/Am cf.	0	0	0	0	0	0	0	0	0
Cherry	447	68.52	1	0.01	7	1.3	0	0	69.83
Chestnut	27	1.48	0	0	4	0.2	0	0	1.68
Citrus	6	0.05	0	0	0	0	0	0	0.05
Cloves	0	0	0	0	0	0	1	0.01	0.01
Coffee bean	8	0.3	3	0.1	0	0	0	0	0.4
Coriander	1	0.01	0	0	0	0	2	0.01	0.02
Cranberry	2	0.01	0	0	0	0	0	0	0.01
Crataegus cf.	1	0.01	0	0	0	0	0	0	0
Cucumber	84	0.3	0	0	0	0	0	0	0.3
Cucurbit	0	0	0	0	0	0	0	0	0
Dock	0	0	0	0	0	0	0	0	0
Drupes	0	0	9	0.1	0	0	0	0	0.1
Eggplant	0	0	0	0	0	0	0	0	0
Eggshell	2	0.2	0	0	0	0	14	0.2	0.4
Elderberry	0	0	0	0	0	0	0	0	0
Fig/Mulberry	0	0	2	0.01	0	0	0	0	0.01
Fishscale	2	0.01	0	0	0	0	3	0.01	0.02
Foxtail	0	0	0	0	0	0	0	0	0
Fungi	0	0	0	0	0	0	0	0	0
Grape	2839	29.89	16	0.1	17	0.2	15	0.1	30.29
Hickory nut	1	0.7	0	0	1	0.7	0	0	1.4
Huckleberry	11	0.1	9	0.05	0	0	1	0.01	0.16
Lemon cf.	1	0.1	0	0	0	0	0	0	0.1
Malva-like	0	0	1	0.05	0	0	0	0	0.05
Melon	18	0.3	1	0.01	0	0	0	0	0.31
Nightshade family	36	0.1	8	0.05	12	0.05	8	0.05	0.25
Peach	19	39.38	0	0	14	18.7	0	0	58.08
Peanut	14	0.8	0	0	2	0.3	0	0	1.1
Pear	25	0.5	3	0.05	0	0	0	0	0.55
Pepper,red/chili	0	0	1	0.01	0	0	0	0	0.01
Persimmon	7	1.6	0	0	0	0	0	0	1.6
Plum	57	15.89	0	0	11	2.7	0	0	18.59
Pokeweed	3	0.05	0	0	0	0	0	0	0.05
Pondweed cf.	0	0	0	0	0	0	0	0	0
Raspberry	2774	5.9	47	0.2	55	0.2	35	0.14	6.44
Sedge	0	0	0	0	0	0	0	0	0
Smartweed	0	0	0	0	0	0	0	0	0
Smartweed/Dock	0	0	0	0	0	0	0	0	0
Spurge	5	0.05	0	0	0	0	0	0	0.05
Strawberry	0	0	1	0.01	0	0	0	0	0.01
Thistle-like	0	0	0	0	0	0	0	0	0
Tomato	11815	23.65	944	1.9	903	1.8	902	1.74	29.09
Viburnum	2	0.05	0	0	0	0	0	0	0.05
Walnut	5	3.2	0	0	3	1.2	0	0	4.4
Watermelon	210	8.69	2	0.01	8	0.01	5	0.01	8.72
Unknowns			3				3	0.1	0.1
Unknown nutshell	5	0	0	0	4	0.09	0	0	0.09
Unknown sesame-like	2	0.01			0	0	0	0	0.01
Beetle parts	0	0	3	0.01	0	0	0	0	0.01
Insect/larvae	0	0	1	0	5	0.12	16	0.1	0.22
Fruit skins		0	0	0	0	0	0	0	0
Not analyzed	0	116	0	0	0	0	0	0	116
Misc. beads/stones	0	0	0	0	0	0	0	0	0
Waste	0	0	0	0	0	0	0	0	

L.7

Sample 1 <		Sample 2 <		Sample 3 <		Scan		Total		TALLY LE
15 g < 2 mm		15 g < 2 mm		15 g < 2 mm		< 1 mm		wt	All	3-15g samples
Quantity	Wt (g)	Quantity	Wt (g)	Quantity	Wt (g)	Quantity	Wt. (g)	<2mm	>2 mm	> 2mm
0	0	0	0	0	0	0	0	0	31	0
9	0.05	24	0.05	7	0.05	0	0	0.15	696	51
0	0	0	0	0	0	0	0	0	125	5
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	455	8
0	0	0	0	0	0	0	0	0	31	4
0	0	0	0	0	0	0	0	0	6	0
0	0	0	0	0	0	0	0	0	1	1
0	0	0	0	0	0	0	0	0	11	3
0	0	2	0.05	1	0.05	0	0	0.1	3	2
40	0.3	40	0.3	38	0.31	0	0	0.91	2	0
0	0	0	0	0	0	0	0	0.01	1	0
0	0	0	0	0	0	0	0	0	84	0
0	0	8	0.05	0	0	0	0	0.05	0	0
0	0	0	0	0	0	0	0	0	0	0
33	0.25	17	0.19	11	0.05	0	0	0.49	9	9
0	0	0	0	0	0	0	0	0	0	0
2	0.01	0	0	0	0	0	0	0.01	16	14
4	0.01	5	0.01	10	0.01	0	0	0.03	0	0
113	0.17	95	0.1	90	0.1	0	0	0.37	2	2
7	0.01	2	0.01	9	0.01	0	0	0.03	5	3
0	0	0	0	1	0.01	0	0	0.01	0	0
0	0	0	0	1	0.04	0	0	0.04	0	0
6	0.1	7	0.09	10	0.05	0	0	0.24	2887	48
0	0	0	0	0	0	0	0	0	2	1
537	0.8	432	0.67	372	0.55	0	0	2.02	21	10
0	0	0	0	0	0	0	0	0	1	0
1	0	0	0	0	0	0	0	0	1	1
0	0	0	0	0	0	0	0	0	19	1
0	0	3	0.04	0	0.01	0	0	0.05	64	28
0	0	0	0	0	0	0	0	0	33	14
0	0	0	0	0	0	0	0	0	16	2
0	0	0	0	0	0	0	0	0	28	3
2	0.01	0	0	0	0	0	0	0.01	1	1
0	0	0	0	0	0	0	0	0	7	0
0	0	0	0	0	0	0	0	0	68	11
0	0	0	0	0	0	0	0	0	3	0
0	0	0	0	0	0	0	0	0	0	0
2525	5.43	2937	6.3	2890	6.2	0	0	17.93	2911	137
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	1	0.04	0	0	0.04	0	0
0	0		0	3	0.09	0	0	0.09	0	0
1	0.01	0	0	0	0	0	0	0.01	5	0
0	0	0	0	5	0.05	0	0	0.05	1	1
0	0	0	0	0	0	0	0	0	0	0
200	0.3	230	0.6	409	0.6	0	0	1.5	14564	2749
0	0	0	0	0	0	0	0	0	2	0
0	0	0	0	0	0	0	0	0	8	3
5	-0.1	0	0	0	0	0	0	-0.1	225	15
6	0	0	0	0	0	0	0	0	6	6
0	0	0	0	0	0	0	0	0	9	4
0	0	0	0	0	0	0	0	0	2	0
0	0	0	0	0	0	0	0	0	3	3
30	0.05	65	0.1	67	0.1	0	0	0.25	22	22
0	0	0	0	0	0	0	0	0	0	0
0	0		426.8			0	0	426.8	0	0
5	0	0	0	1	0	0	0	0	0	0
0	7.6	0	6.7	0	7	0	0	21.3	0	0

VEL 7	Level 7			Level 7 w/o formula	
3-15g samples				Total	Total
< 2 mm L.7	Total count	Total wt.	Names	quantity	wt
0	31	0.5	Apple	31	0.5
40	736	10.83	Apple/ pear	736	10.83
0	125	7.44	Berries	125	7.44
0	0	0	Brassica	0	0
0	0	0	Cheno/Am cf.	0	0
0	455	69.83	Cherry	455	69.83
0	31	1.68	Chestnut	31	1.68
0	6	0.05	Citrus	6	0.05
0	1	0.01	Cloves	1	0.01
0	11	0.4	Coffee bean	11	0.4
3	6	0.14	Coriander	6	0.14
118	120	0.92	Cranberry	120	0.92
0	1	0.01	Crataegus cf.	0	0
0	84	0.3	Cucumber	84	0.3
8	8	0.05	Cucurbit	8	0.05
0	0	0	Dock	0	0
61	70	0.59	Drupes	70	0.59
0	0	0	Eggplant	0	0
2	18	0.41	Eggshell	18	0.41
19	19	0.03	Elderberry	19	0.03
298	300	0.38	Fig/Mulberry	300	0.38
18	23	0.05	Fishscale	23	0.05
1	1	0.01	Foxtail	1	0.01
1	1	0.04	Fungi	1	0.04
23	2910	30.53	Grape	2910	30.53
0	2	1.4	Hickory nut	2	1.4
1341	1362	2.18	Huckleberry	1362	2.18
0	1	0.1	Lemon cf.	1	0.1
1	2	0.05	Malva-like	2	0.05
0	19	0.31	Melon	19	0.31
3	67	0.3	Nightshade family	67	0.3
0	33	58.08	Peach	33	58.08
0	16	1.1	Peanut	16	1.1
0	28	0.55	Pear	28	0.55
2	3	0.02	Pepper,red/chili	3	0.02
0	7	1.6	Persimmon	7	1.6
0	68	18.59	Plum	68	18.59
0	3	0.05	Pokeweed	3	0.05
0	0	0	Pondweed cf.	0	0
8352	11233	24.37	Raspberry	11233	24.37
0	0	0	Sedge	0	0
1	1	0.04	Smartweed	1	0.04
3	3	0.09	Smartweed/Dock	3	0.09
1	6	0.06	Spurge	6	0.06
5	6	0.06	Strawberry	6	0.06
0	0	0	Thistle-like	0	0
839	15403	30.59	Tomato	15403	30.59
0	0	0	Viburnum	2	0.05
0	8	4.4	Walnut	8	4.4
5	230	8.62	Watermelon	230	8.62
6	12	0.1	Unknowns	12	0.1
0	9	1.09	Unknown nutshell	9	1.09
0	2	0.01	Unknown sesame-like	2	0.01
0	3	0.01	Beetle parts	3	0.01
162	184	0.47	Insect/larvae	184	0.47
0	0	0	Fruit skins	0	0
0	0	542.8	Not analyzed	0	542.8
6	6	0	Misc. beads/stones	6	0
0	0	21.3	Waste		21.3

MAJOR SEEDS

Apple/ pear	795
Cherry	455
Fig/Mulberry	300
Grape	2910
Huckleberry	1362
Raspberry	11233
Tomato	15403
Watermelon	230

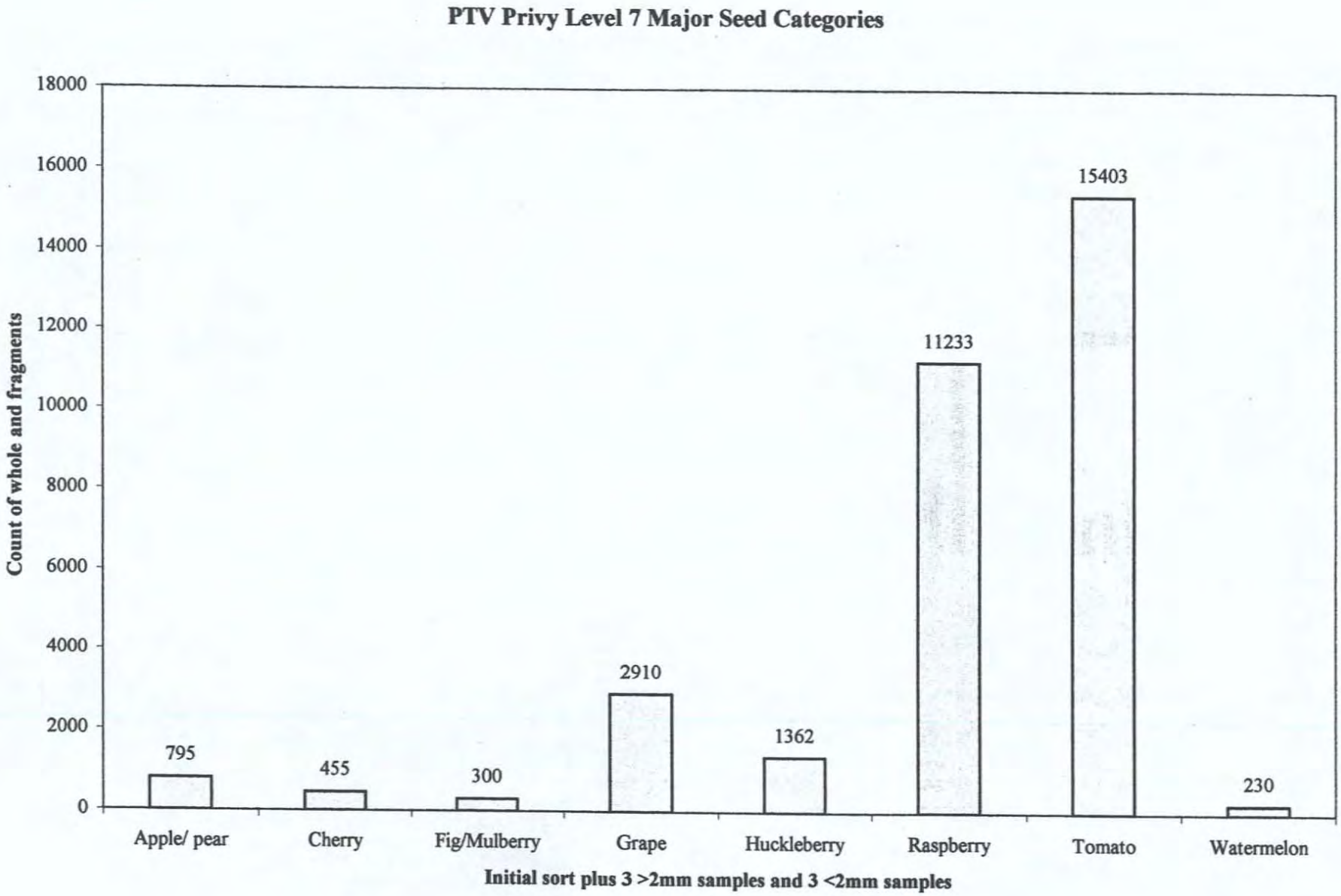
WEEDS

Brassica	0
Cheno/Am cf.	0
Dock	0
Foxtail	1
Malva-like	2
Nightshade family	67
Pokeweed	3
Pondweed cf.	0
Sedge	0
Smartweed	1
Smartweed/Dock	3
Spurge	6
Thistle-like	0

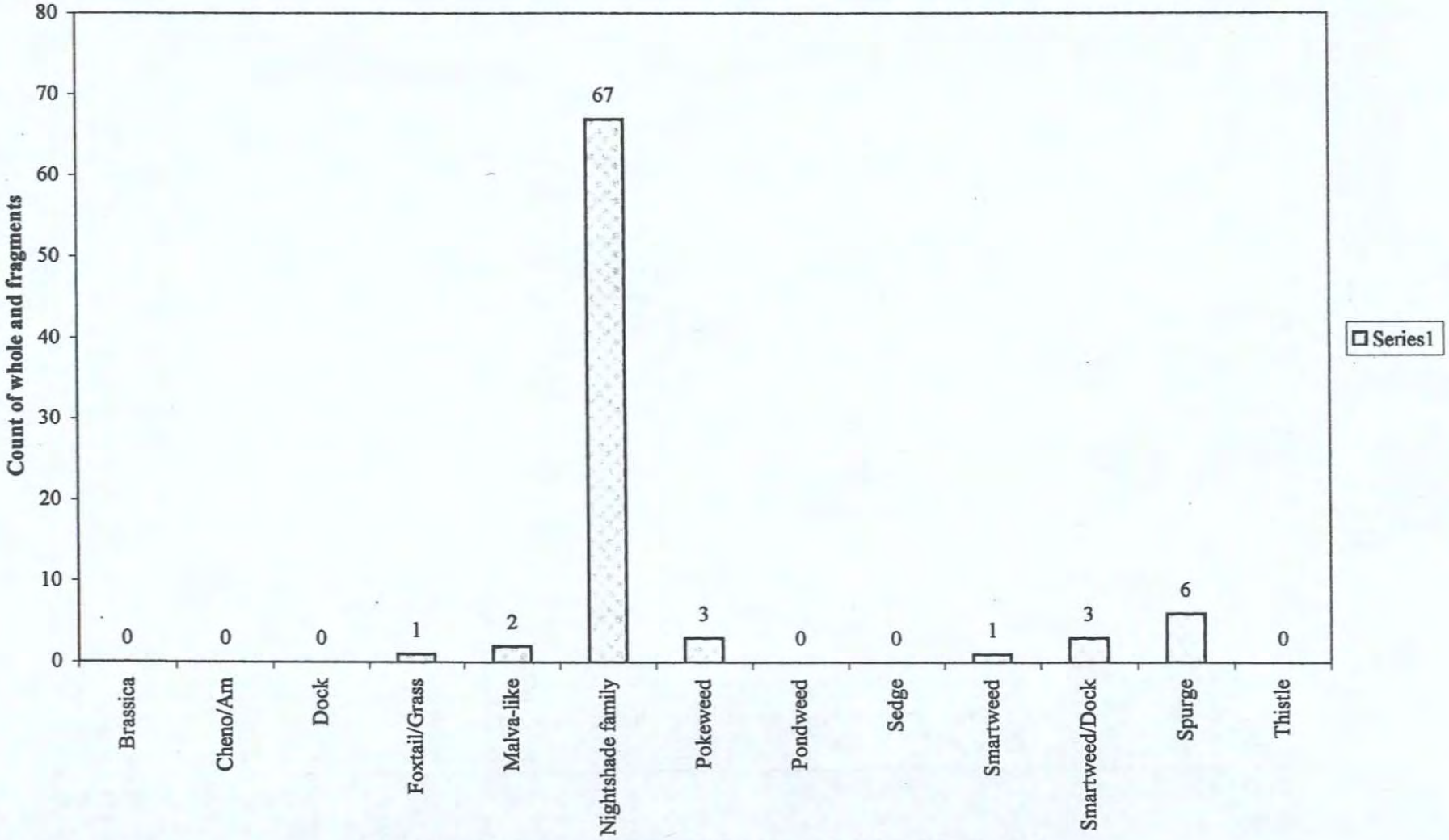
MINOR FRUIT SEEDS	
Apple	31
Berries	125
Citrus	6
Cranberry	120
Elderberry	19
Melon	19
Peach	33
Pear	28
Persimmon	7
Plum	68
Strawberry	6

MINOR VEGETABLE SEEDS	
Cucumber	84
Cucurbit	8
Eggplant	0
Nightshade family	67
Pepper,red/chili	3

CONDIMENTS	
Citrus	6
Cloves	1
Coffee bean	11
Coriander	10

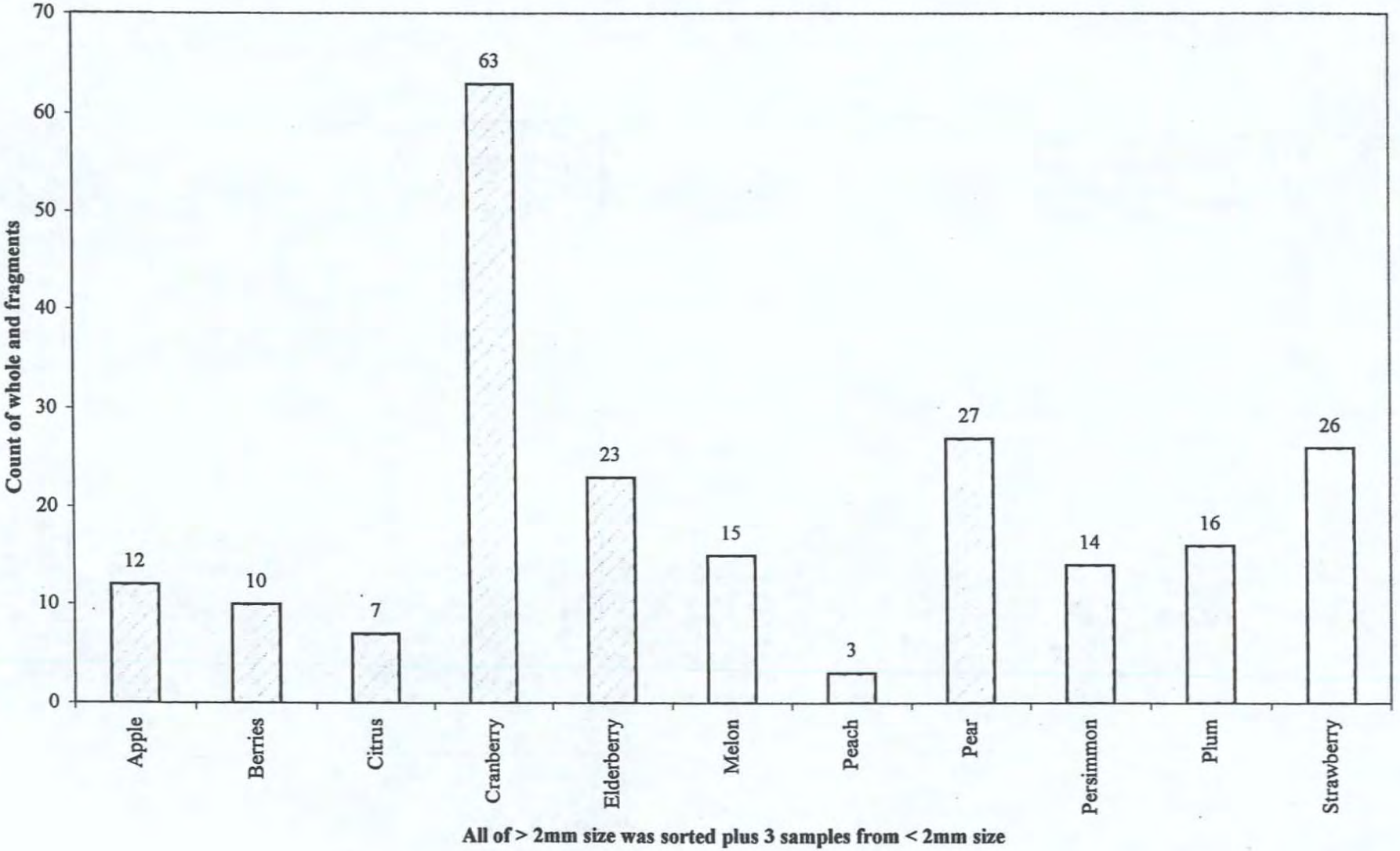

PTV Privy Level 7 Major Seed Categories
Count of whole and fragments
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
795
455
300
2910
1362
11233
15403
230
Apple/ pear
Cherry
Fig/Mulberry
Grape
Huckleberry
Raspberry
Tomato
Watermelon
Initial sort plus 3 >2mm samples and 3 <2mm samples

OTV Privy Level 7 Total Weed Seeds



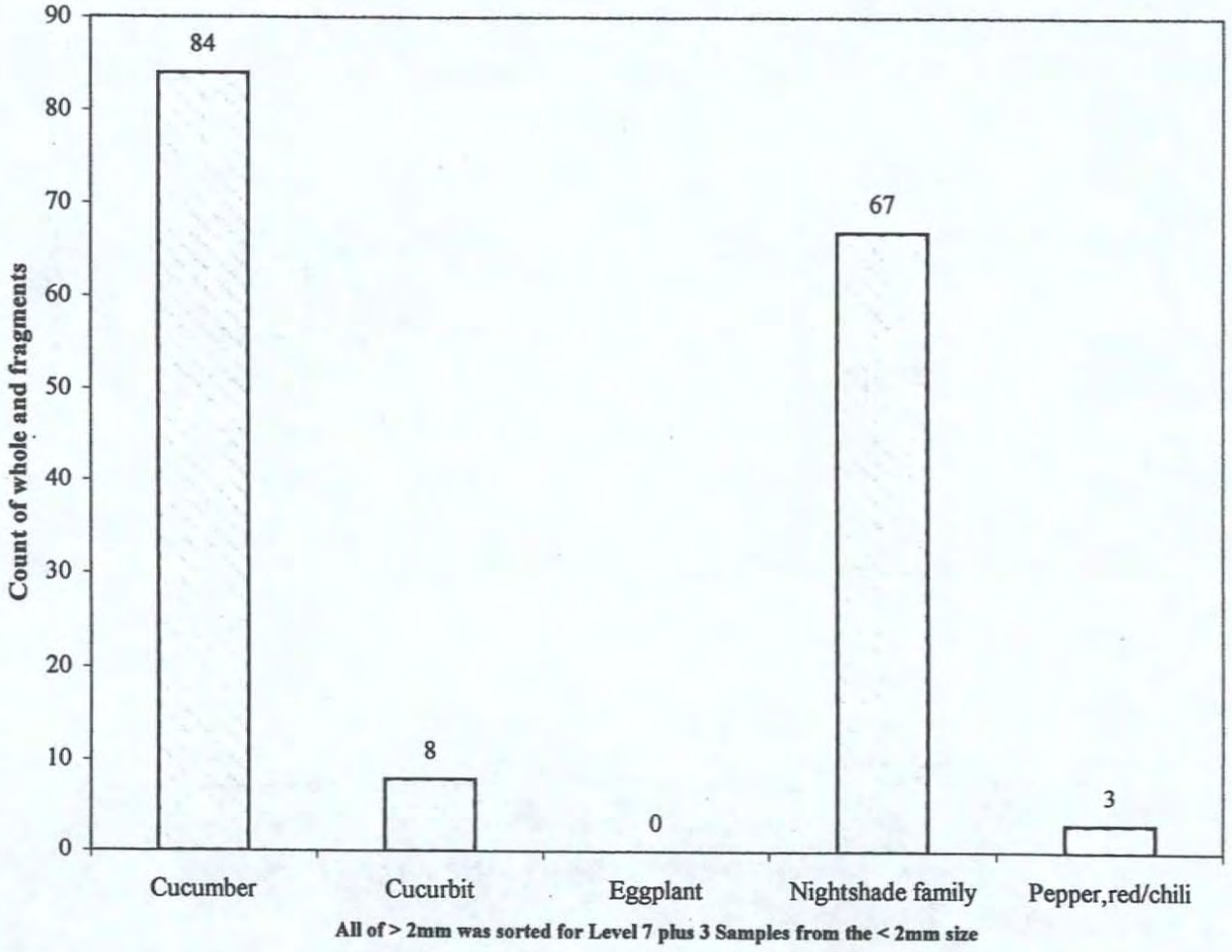
All of > 2mm size was sorted for Level 7 plus 3 samples from the < 2mm size

OTV Privy Level 7 Total Minor "Fruit" Seeds



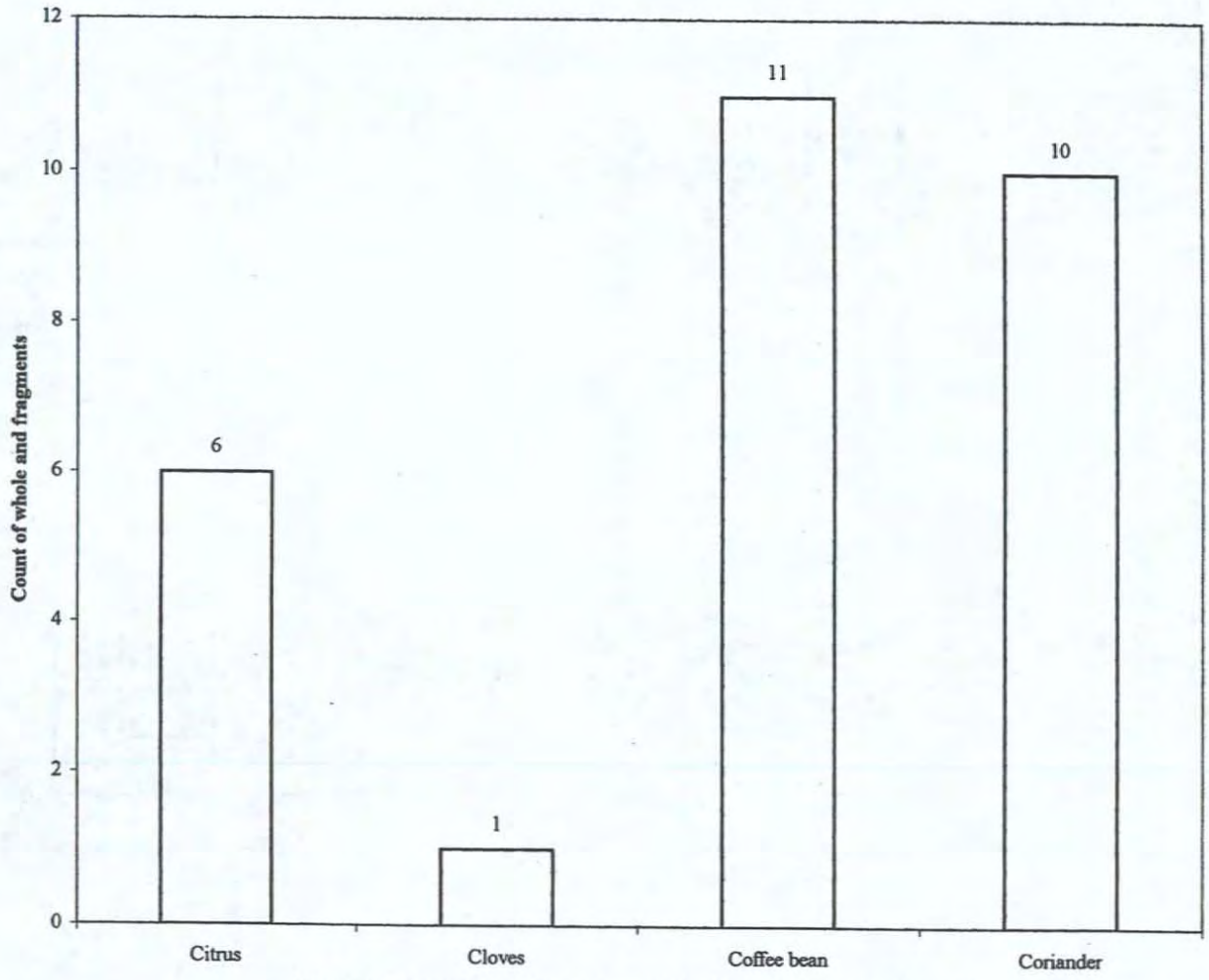
All of > 2mm size was sorted plus 3 samples from < 2mm size

OTV Privy Level 7 Minor "Vegetable" Seeds



All of > 2mm was sorted for Level 7 plus 3 Samples from the < 2mm size

OTV Privy Level 7 Condiments

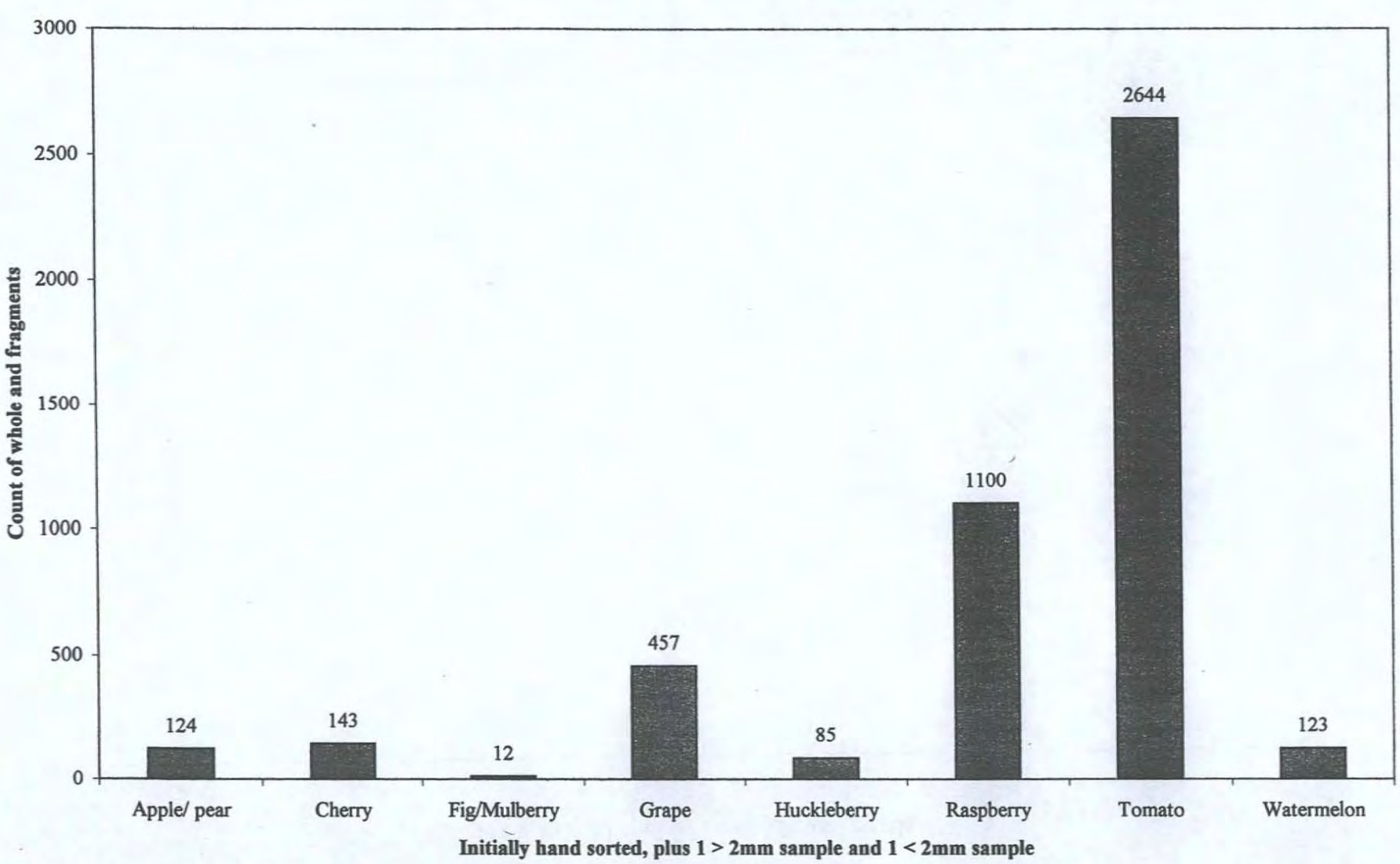


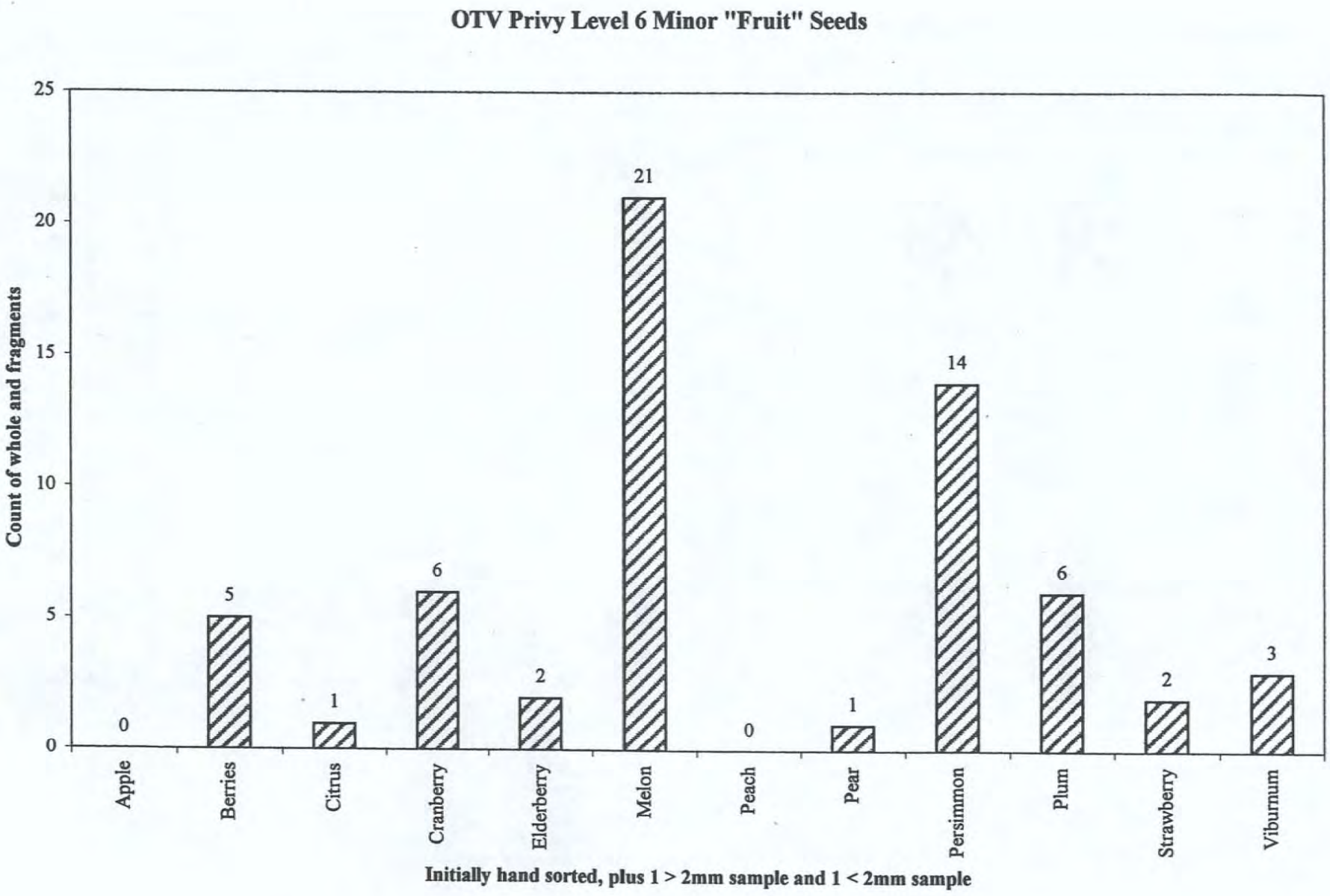
All of > 2mm size was sorted from Level 7 plus 3 samples from the < 2mm size

Old Town Village Privy: Level 6

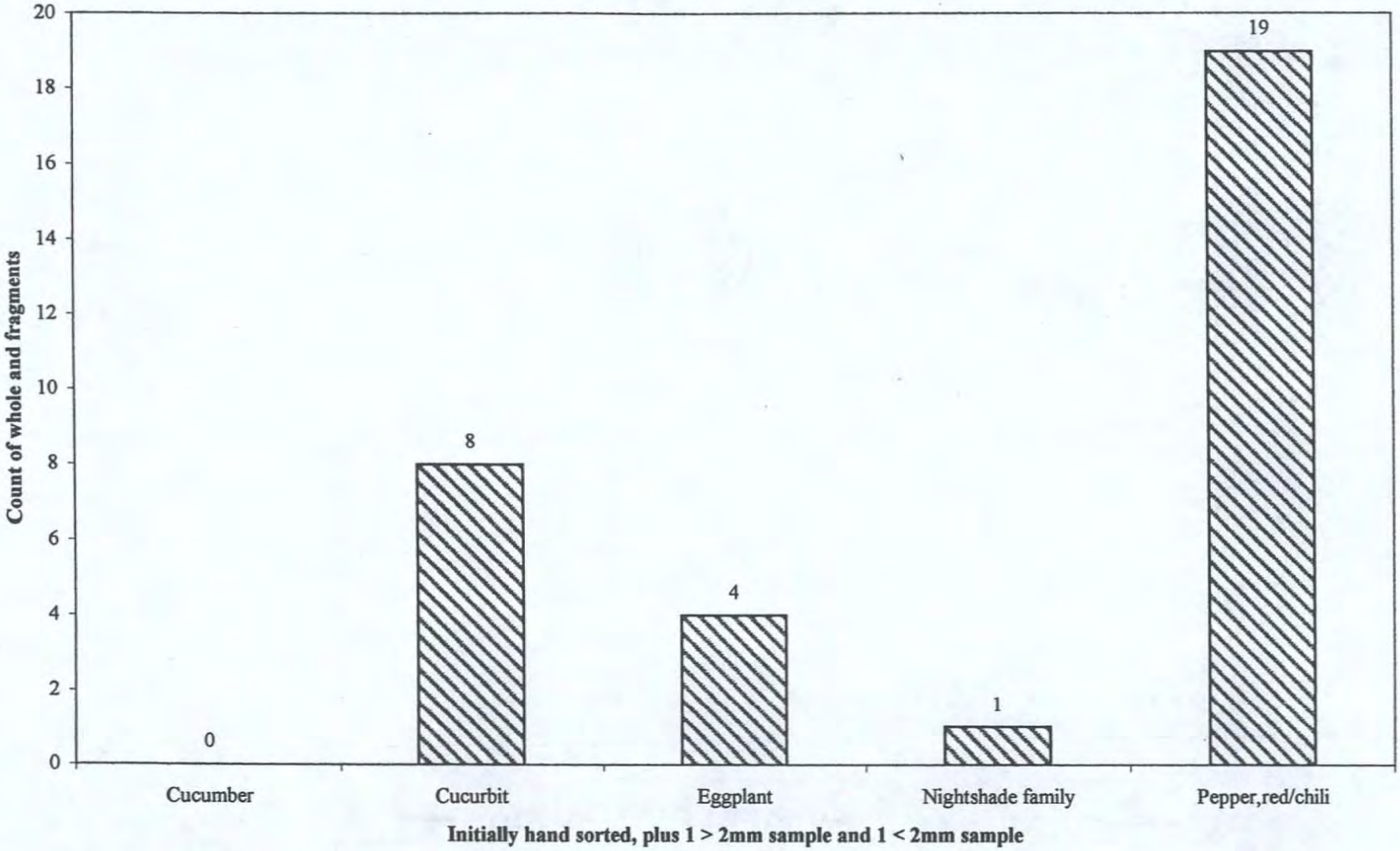
	Initial Sort >2.6 mm		Sample 1 > 15 g > 2 mm			Sample 2 > 15 g > 2 mm		Sample 3 > 15 g > 2 mm		L.6 Sample 1 < 15 g < 2 mm	
Seeds and...	Quantity	Wt (g)	Quantity	Wt (g)	Tally	Quantity	Wt (g)	Quantity	Wt (g)	Quantity	Wt. (g)
Apple	0	0	0	0	0					0	
Apple/ pear	99	2	23	0.13	122					2	0.01
Berries	5	1	0	0	5					0	
Brassica	0	0	0	0	0					1	< 0.1
Cheno/Am	0	0	0	0	0					0	
Cherry	143	16.7	0	0	143					0	
Chestnut	2	0.2	0	0	2					0	
Citrus	1	0.05	0	0	1					0	
Cloves	0	0	0	0	0					0	
Coffee bean	0	0	0	0	0					0	
Coriander	0	0	1	0.01	1					1	0.01
Cranberry	0	0	1	< 0.01	1					5	0.01
Cucumber	0	0	0	0	0					0	
Cucurbit	0	0	8	< 0.01	8					0	
Dock	0	0	0	0	0					0	
Drupes	0	0	0	0	0					0	
Eggplant	0	0	1	< 0.01	1					3	0.01
Eggshell	0	0	24	0.55	24					0	
Elderberry	0	0	0	0	0					2	0.01
Fig/Mulberry	0	0	0	0	0					12	0.04
Fishscale	0	0	29	0.05	29					8	0.01
Foxtail/grass	0	0	0	0	0					0	
Fungi	0	0	1	0.01	1						
Grape	402	10.65	27	0.24	429					28	0.3
Hickory nut	0	0	0	0	0					0	
Huckleberry	0	0	0	0	0					85	0.18
Lemon	0	0	0	0	0					0	
Malva-like	0	0	0	0	0					0	
Melon	21	0.31	0	0	21					0	
Nightshade family	0	0	0	0	0					1	< 0.01
Orange	0	0	0	0	0					0	
Peach	0	0	0	0	0					0	
Peanut	1	0.2	0	0	1					0	
Pear	1	0.01	0	0	1					0	
Pepper,red/chili	3	0.1	15	0.05	18					1	< 0.01
Persimmon	14	2.1	0	0	14					0	
Plum	6	1.74	0	0	6					0	
Pokeweed	0	0	1	< 0.01	1					0	
Pondweed	0	0	0	0	0					0	0
Raspberry	152	0.31	108	0.3	260					840	1.85
Sedge	0	0	0	0	0					0	
Smartweed	0	0	0	0	0					0	
Smartweed/Dock	0	0	0	0	0					0	
Spurge	0	0	0	0	0					2	0.1
Strawberry	0	0	0	0	0					2	< 0.01
Thistle	0	0	0	0	0					1	< 0.05
Tomato	630	0.8	1533	2.3	2163					481	0.72
Viburnum	0	0	0	0	0					0	0
Walnut	1	0.4	0	0	1					0	0
Watermelon	122	4.62	0	0	122					1	0.01
Unknown	0		0	0	0					0	0
Unknown nutshell	0	0	0	0	0					0	0
Unknown sesame-like	0	0	0	0	0					0	0
Beetle parts	0	0	0	0	0					0	0
Insect/larvae	6	< 0.1	37	0.17	43					18	0.01
Fruit skins			100	0.62	100					30	0.05
Not anaylzed				130	0					0	0
Misc. beads/stones			0	0	0					0	0
Waste				11.2	0					0	0

Sample 2 < 15 g < 2 mm		Sample 3 < 15 g < 2 mm		1-15g sam	LEVEL 6 TALLY	Tally	1-15g samples		Level 6 Total	Total	
Quantity	Wt (g)	Quantity	Wt (g)	> 2mm	>2mm	Wt. >2mm	< 2mm	Wt. (g)	Quantity	Wt	Seeds and...
				0	0	0	0	0	0	0	Apple
				23	122	2.13	2	0.01	124	2.14	Apple/ pear
				0	5	1	0		5	1	Berries
				0	0	0	1	< 0.1	1	#VALUE!	Brassica
				0	0	0	0	0	0	0	Cheno/Am
				0	143	16.7	0	0	143	16.7	Cherry
				0	2	0.2	0	0	2	0.2	Chestnut
				0	1	0.05	0	0	1	0.05	Citrus
				0	0	0	0	0	0	0	Cloves
				0	0	0	0	0	0	0	Coffee bean
				1	1	0.01	1	0.01	2	0.02	Coriander
				1	1	#VALUE!	5	0.01	6	#VALUE!	Cranberry
				0	0	0	0	0	0	0	Cucumber
				8	8	#VALUE!	0	0	8	#VALUE!	Cucurbit
				0	0	0	0	0	0	0	Dock
				0	0	0	0	0	0	0	Drupes
				1	1	#VALUE!	3	0.01	4	#VALUE!	Eggplant
				24	24	0.55	0	0	24	0.55	Eggshell
				0	0	0	2	0.01	2	0.01	Elderberry
				0	0	0	12	0.04	12	0.04	Fig/Mulberry
				29	29	0.05	8	0.01	37	0.06	Fishscale
				0	0	0	0		0	0	Foxtail/grass
				1	1	0.01			1	0.01	Fungi
				27	429	10.89	28	0.3	457	11.19	Grape
				0	0	0	0		0	0	Hickory nut
				0	0	0	85	0.18	85	0.18	Huckleberry
				0	0	0	0		0	0	Lemon
				0	0	0	0		0	0	Malva-like
				0	21	0.31	0		21	0.31	Melon
				0	0	0	1	< 0.01	1	#VALUE!	Nightshade family
				0	0	0	0		0	0	Orange
				0	0	0	0		0	0	Peach
				0	1	0.2	0		1	0.2	Peanut
				0	1	0.01	0		1	0.01	Pear
				15	18	0.15	1	< 0.01	19	#VALUE!	Pepper,red/chili
				0	14	2.1	0		14	2.1	Persimmon
				0	6	1.74	0		6	1.74	Plum
				1	1	#VALUE!	0		1	#VALUE!	Pokeweed
				0	0	0	0	0	0	0	Pondweed
				108	260	0.61	840	1.85	1100	2.46	Raspberry
				0	0	0	0		0	0	Sedge
				0	0	0	0		0	0	Smartweed
				0	0	0	0		0	0	Smartweed/Dock
				0	0	0	2	0.1	2	0.1	Spurge
				0	0	0	2	< 0.01	2	#VALUE!	Strawberry
				0	0	0	1	< 0.05	1	#VALUE!	Thistle
				1533	2163	3.1	481	0.72	2644	3.82	Tomato
				0	0	0	0	0	0	0	Viburnum
				0	1	0.4	0	0	1	0.4	Walnut
				0	122	4.62	1	0.01	123	4.63	Watermelon
				0	0	0	0	0	0	0	Unknown
				0	0	0	0	0	0	0	Unknown nutshell
				0	0	0	0	0	0	0	Unknown sesame-like
				0	0	0	0	0	0	0	Beetle parts
				37	43	#VALUE!	18	0.01	61	#VALUE!	Insect/larvae
				100	100	0.62	30	0.05	130	0.67	Fruit skins
					0	130	0	0	0	130	Not anaylzed
				0	0	0	0	0	0	0	Misc. beads/stones
					0	11.2	0	0	0	11.2	Waste


OTV Privy Level 6 Major Seed Categories
Count of whole and fragments
3000
2500
2000
1500
1000
500
0
124
143
12
457
85
1100
2644
123
Apple/ pear
Cherry
Fig/Mulberry
Grape
Huckleberry
Raspberry
Tomato
Watermelon
Initially hand sorted, plus 1 > 2mm sample and 1 < 2mm sample

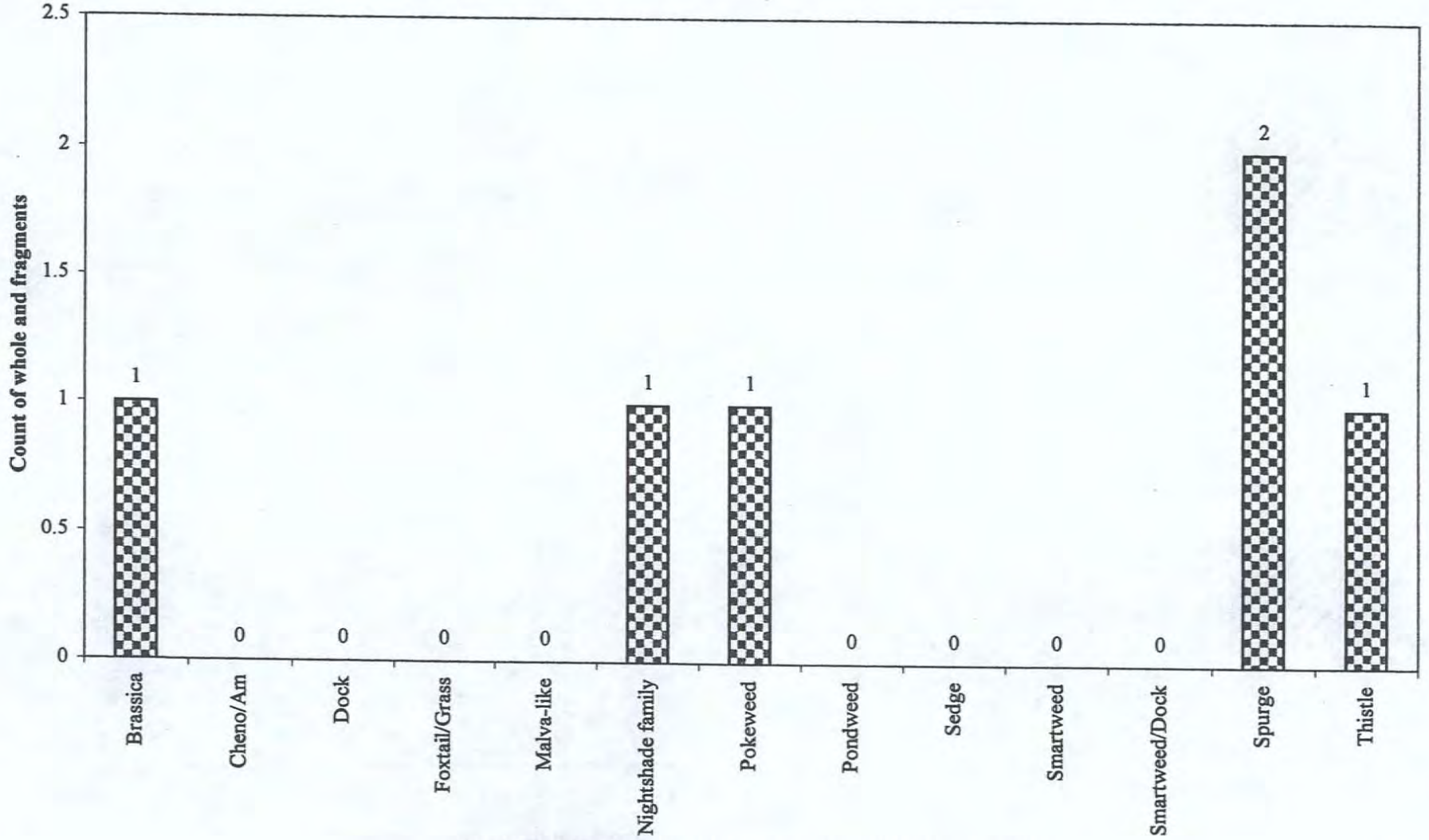

OTV Privy Level 6 Minor "Fruit" Seeds
Count of whole and fragments
25
20
15
10
5
0
0
5
1
6
2
21
0
1
14
6
2
3
Apple
Berries
Citrus
Cranberry
Elderberry
Melon
Peach
Pear
Persimmon
Plum
Strawberry
Viburnum
Initially hand sorted, plus 1 > 2mm sample and 1 < 2mm sample

OTV Privy Level 6 Minor "Vegetable" Seeds

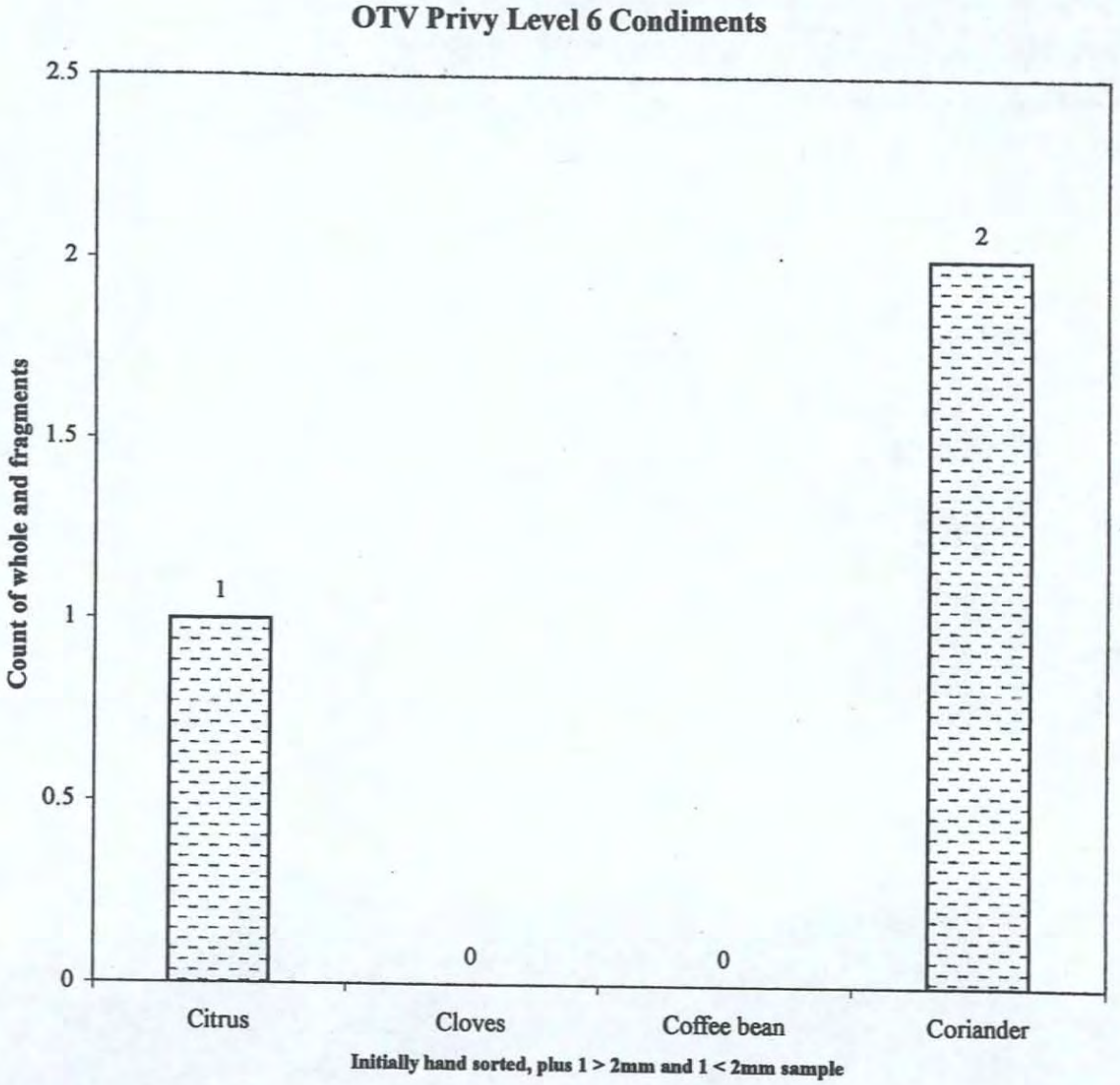


Initially hand sorted, plus 1 > 2mm sample and 1 < 2mm sample

OTV Privy Level 6 Total Weed Seeds



Initally hand sorted, plus 1 > 2mm sample and 1 < 2mm sample


OTV Privy Level 6 Condiments
Count of whole and fragments
2.5
2
1.5
1
0.5
0
1
0
0
2
Citrus
Cloves
Coffee bean
Coriander
Initially hand sorted, plus 1 > 2mm and 1 < 2mm sample

Total Seeds

Level 5

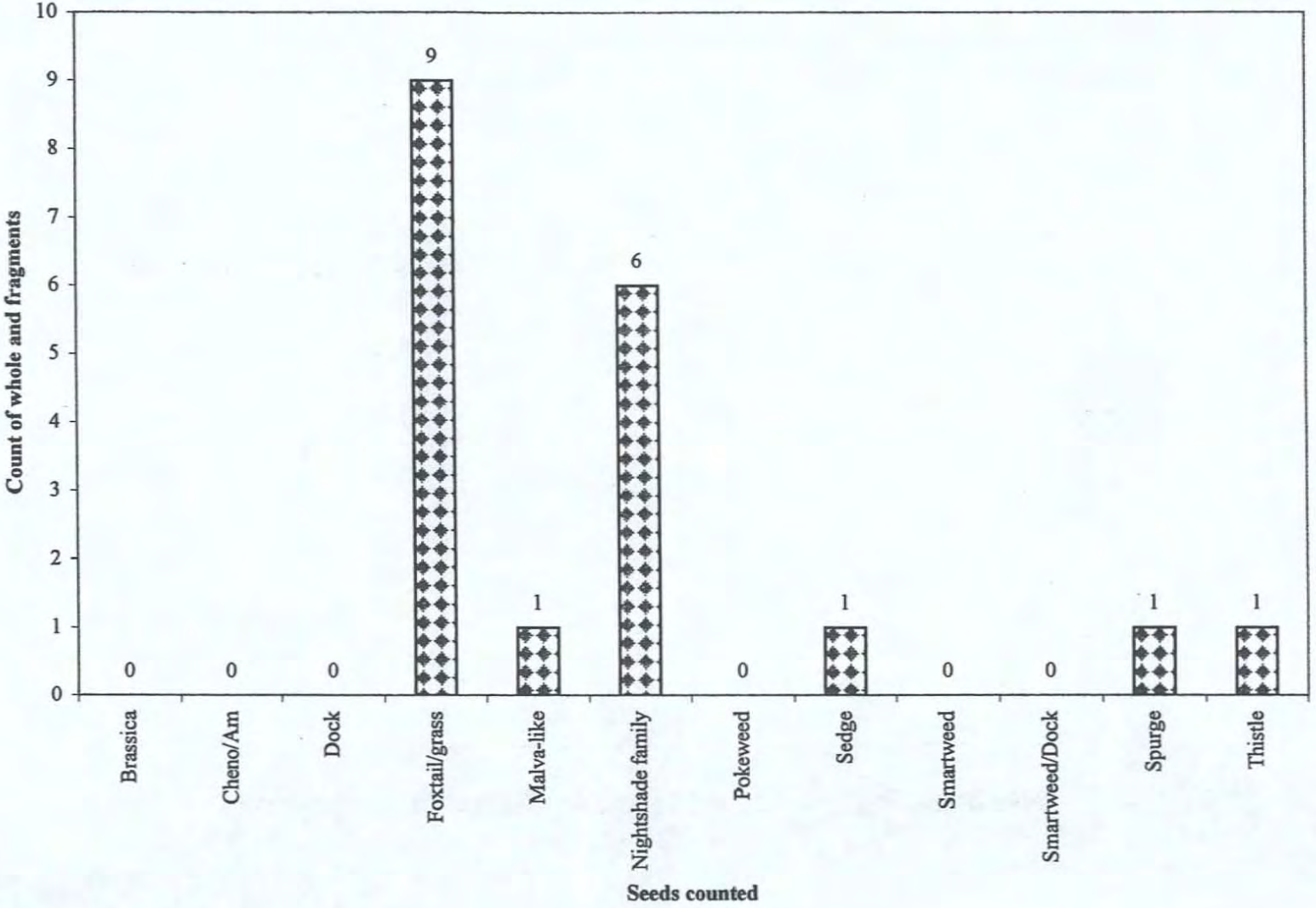
Seeds	Total quantity	Total wt
Apple	3	0.04
Apple/ pea	108	1.41
Berries	8	0.6
Brassica	0	0
Cheno/Am	0	0
Cherry	263	25.87
Chestnut	3	0.3
Citrus	0	0
Cloves	0	0
Coffee bea	0	0
Coriander	5	0.09
Cranberry	3	0.11
Cucumber	1	0.01
Cucurbit	0	0
Dock	0	0
Drupes	14	0.06
Eggplant	0	0
Eggshell	6	0.15
Elderberry	5	0.04
Fig/Mulber	104	0.12
Fishscale	18	0.16
Foxtail/gra:	9	0.02
Fungi	7	0.03
Grape	367	8.37
Hickory nu	0	0
Huckleberr	1712	2.59
Lemon	0	0
Malva-like	1	0.02
Melon	25.5	0.46
Nightshade	6	0.06
Orange	0	0
Peach	0	0
Peanut	1	0.1
Pear	6	0.15
Pepper,red	8	0.06
Persimmor	3	0.6
Plum	7	1.7
Pokeweed	0	0
Pondweed	10	0.02
Raspberry	2390	5.2
Sedge	1	0.01
Smartweec	0	0
Smartweec	0	0
Spurge	1	0.02
Strawberry	5	0.02
Thistle	1	0.04
Tomato	2271	3.13
Viburnum	1	0.05
Walnut, An	0	0
Watermelo	190.5	9.3
Unknown	2	10
Unknown r	9	0.2

Old Town Village Privy: Level 5

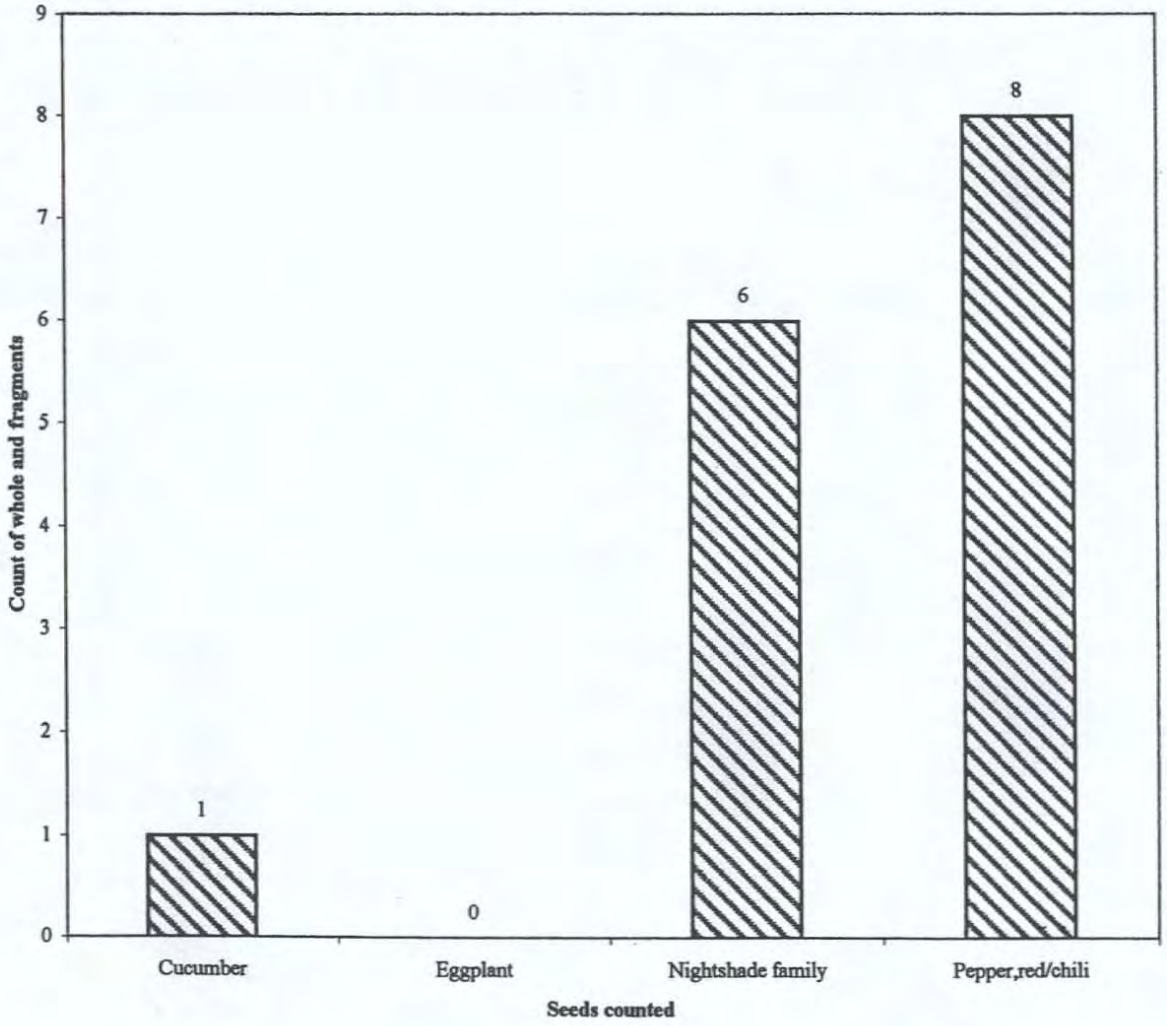
	Initial Sort > 2mm		Sample 1 > 15 g > 2 mm		Sample 2 > 15 g > 2 mm		Sample 3 > 15 g > 2 mm		Sample 1 < 15 g < 2 mm	
Seeds and...	Quantity	Wt (g)	Quantity	Wt (g)	Quantity	Wt (g)	Quantity	Wt (g)	Quantity	Wt. (g)
Apple	0	0	0	0	0	0	0		0	0
Apple/ pear	40	0.8	33	0.2	17	0.1	9	0.05	9	0.26
Berries	6	0.4	2	0.2	0	0		0	0	0
Brassica	0	0	0	0	0	0		0	0	0
Cheno/Am	0	0	0	0	0	0		0	0	0
Cherry	254	25.3	0	0	4	0.17	5	0.4	0	0
Chestnut	3	0.3	0	0	0	0	0		0	0
Citrus	0	0	0	0	0	0	0		0	0
Cloves	0	0	0	0	0	0	0		0	0
Coffee bean	0	0	0	0	0	0	0		0	0
Coriander	1	0.04	2	0.01	0	0	0		0	0
Cranberry	0	0	0	0	0	0	1	0.01	2	0.1
Cucumber	0	0	0	0	0	0	1	0.01	0	0
Cucurbit	0	0	0	0	0	0	0		0	0
Dock	0	0	0	0	0	0	0		0	0
Drupes	0	0	0	0	0	0	0		4	0.02
Eggplant	0	0	0	0	0	0	0		0	0
Eggshell	0	0	0	0	0	0	4	0.1	2	0.05
Elderberry	0	0	0	0	0	0		0	0	0
Fig/Mulberry	0	0	0	0	0	0	1	0.01	40	0.05
Fishscale	0	0	0	0	4	0.1	5	0.04	9	0.02
Foxtail/grass	0	0	0	0	0	0	0	0	3	0.01
Fungi	0	0	0	0	0	0	0	0	3	0.02
Grape	206	5.4	38	1	38	0.8	53	1.1	16	0.05
Hickory nut	0	0	0	0	0	0	0	0	0	
Huckleberry	1	0.01	4	0.01	0	0	2	0.05	600	0.9
Lemon	0	0	0	0	0	0	0	0	0	0
Malva-like	0	0	0	0	0	0	0	0	1	0.02
Melon	24	0.4	0	0	1	0.05	0.5	0.01	0	0
Nightshade family	0	0	5	0.05	0	0	0	0	1	0.01
Orange	0	0	0	0	0	0	0	0	0	0
Peach	0	0	0	0	0	0	0	0	0	0
Peanut	1	0.1	0	0	0	0	0	0	0	0
Pear	3	0.05	0	0	0	0	3	0.1	0	0
Pepper,red/chili	0		0	0	0	0	6	0.05	0	0
Persimmon	3	0.6	0	0	0	0	0	0	0	0
Plum	7	1.7	0	0	0	0	0	0	0	0
Pokeweed	0	0	0	0	0	0	0	0	0	0
Pondweed	0	0	0	0	0	0	0	0	0	0
Raspberry	259	0.67	168	0.24	122	0.3	75	0.2	1740	3.74
Sedge	0	0	0	0	0	0	0	0	0	0
Smartweed	0	0	0	0	0	0	0	0	0	0
Smartweed/Dock	0	0	0	0	0	0	0	0	0	0
Spurge	0	0	0	0	0	0	0	0	1	0.02
Strawberry	0	0	0	0	0	0	0	0	2	0.02
Thistle	0	0	0	0	0	0			1	0.04
Tomato	64	0.02	499	0.8	923	1.2	472	0.7	240	0.36
Viburnum	0	0	1	0.05	0	0	0	0	0	0
Walnut, Amer.& Eng	0	0	0	0	0	0	0	0	0	0
Watermelon	166	8.83	12	0.24	6	0.12	1.5	0.1	5	0.01
Unknown	0	0	0	0	0	10				
Unknown nutshell	1	0.1	8	0.1	0	0				
Unknown sesame-like	0	0	0	0	0	0				
Beetle parts	0	0	0	0	0	0			3	0.01
Insect/larvae	0	0	0	0	0	0	7	0.01	22	0.05
Fruit skins	0	0	0	0	0	0				
Not anaylzed	0	0	0	0	0	0				
Misc. beads/stones	0	0	0	0	0	0	0	0	0	0
Waste		246.74		11.86	0	10.5		11.24		9.1

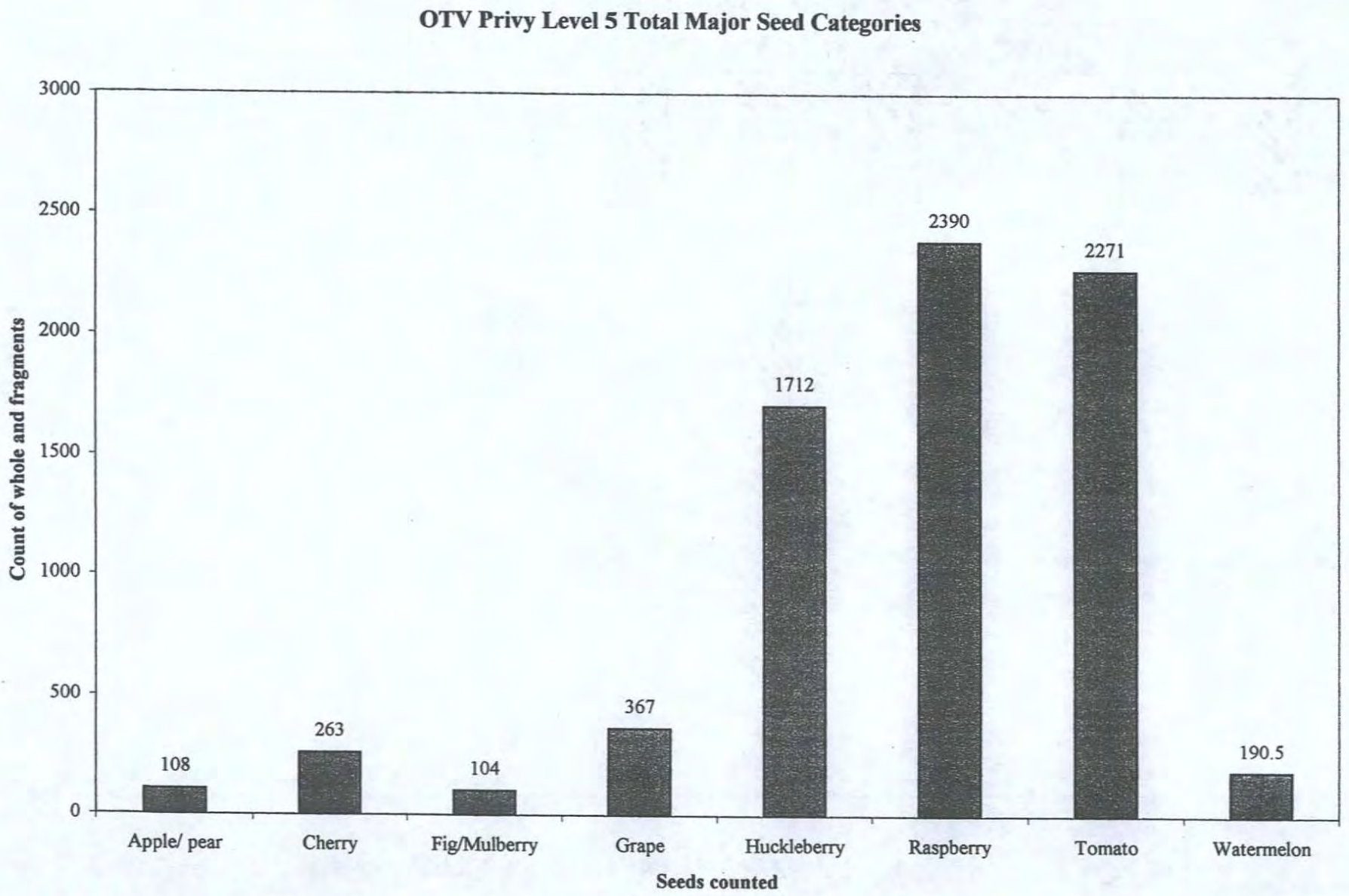
Sample 2 <		Sample 3 <		Scan		TALLY LEVEL 5					
15 g < 2 mm		15 g < 2 mm		< 2mm		TALLY	Total wt	3-15g sample	1-15g sample	Total	
Quantity	Wt (g)	Quantity	Wt (g)	Quantitiy	Wt (g)	All > 2mm	>2mm	> 2mm	< 2mm+scan	<2mm	Wt < 2mm
				3	0.04	0	0	0	3	3	0.04
				0	0	99	1.15	59	9	9	0.26
				0	0	8	0.6	2	0	0	0
				0	0	0	0	0	0	0	0
				0	0	0	0	0	0	0	0
				0	0	263	25.87	9	0	0	0
				0	0	3	0.3	0	0	0	0
				0	0	0	0	0	0	0	0
				0	0	0	0	0	0	0	0
				0	0	0	0	0	0	0	0
				2	0.04	3	0.05	2	2	2	0.04
				0	0	1	0.01	1	2	2	0.1
				0	0	1	0.01	1	0	0	0
				0	0	0	0	0	0	0	0
				0	0	0	0	0	0	0	0
				10	0.04	0	0	0	14	14	0.06
				0	0	0	0	0	0	0	0
				0	0	4	0.1	4	2	2	0.05
				5	0.04	0	0	0	5	5	0.04
				63	0.06	1	0.01	1	103	103	0.11
				0	0	9	0.14	9	9	9	0.02
				6	0.01	0	0	0	9	9	0.02
				4	0.01	0	0	0	7	7	0.03
				16	0.02	335	8.3	129	32	32	0.07
				0	0	0	0	0	0	0	0
				1105	1.62	7	0.07	6	1705	1705	2.52
				0	0	0	0	0	0	0	0
				0	0	0	0	0	1	1	0.02
				0	0	25.5	0.46	1.5	0	0	0
				0	0	5	0.05	5	1	1	0.01
				0	0	0	0	0	0	0	0
				0	0	0	0	0	0	0	0
				0	0	1	0.1	0	0	0	0
				0	0	6	0.15	3	0	0	0
				2	0.01	6	0.05	6	2	2	0.01
				0	0	3	0.6	0	0	0	0
				0	0	7	1.7	0	0	0	0
				0	0	0	0	0	0	0	0
0	0	0	0	10	0.02	0	0	0	10	10	0.02
				26	0.05	624	1.41	365	1766	1766	3.79
				1	0.01	0	0	0	1	1	0.01
				0	0	0	0	0	0	0	0
				0	0	0	0	0	0	0	0
				0	0	0	0	0	1	1	0.02
				3		0	0	0	5	5	0.02
				0	0	0	0	0	1	1	0.04
				73	0.05	1958	2.72	1894	313	313	0.41
				0	0	1	0.05	1	0	0	0
				0	0	0	0	0	0	0	0
				0	0	185.5	9.29	19.5	5	5	0.01
				2	0	0	10	0	2	2	0
				0	0	9	0.2	8	0	0	0
				0	0	0	0	0	0	0	0
				0	0	0	0	0	3	3	0.01
				3	0.01	7	0.01	7	25	25	0.06
				0	0	0	0	0	0	0	0
				0	193	0	0	0	0	0	193
				2	0.05	0	0	0	2	2	0.05
				0	0	0	280.34	0	0	0	9.1

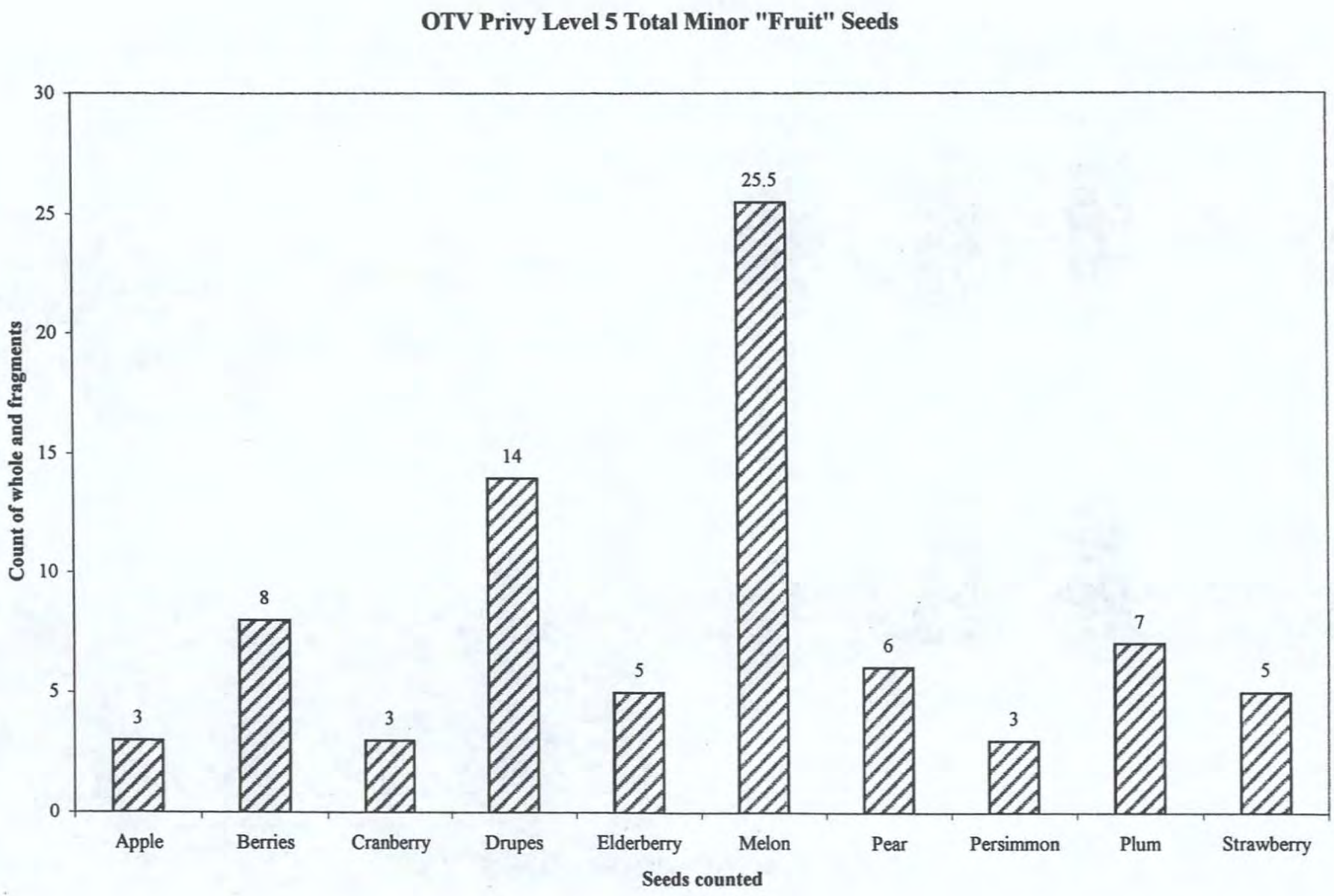
OTV Privy Level 5 Total Weed Seeds



OTV Privy Level 5 Total Minor "Vegetable" Seeds

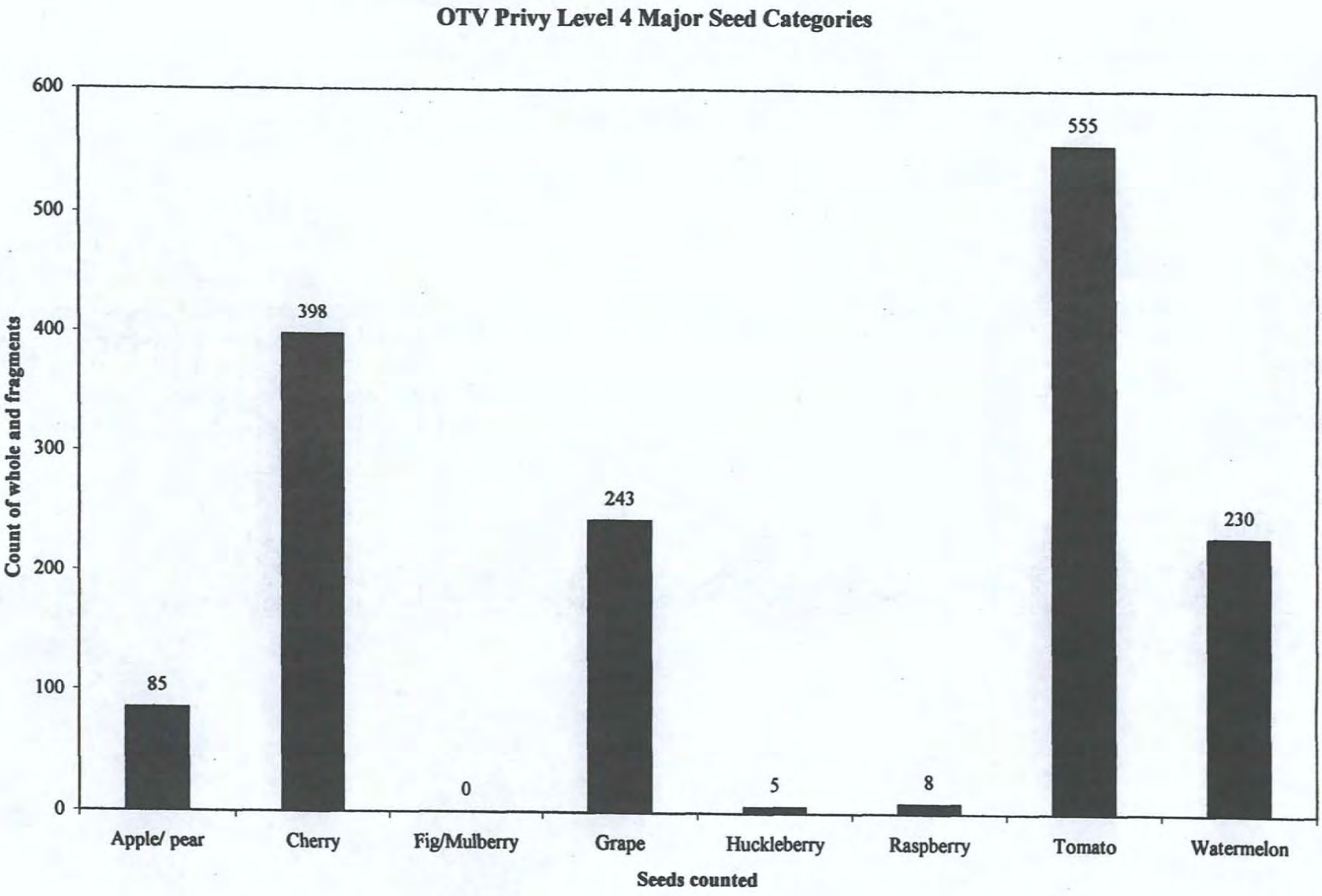


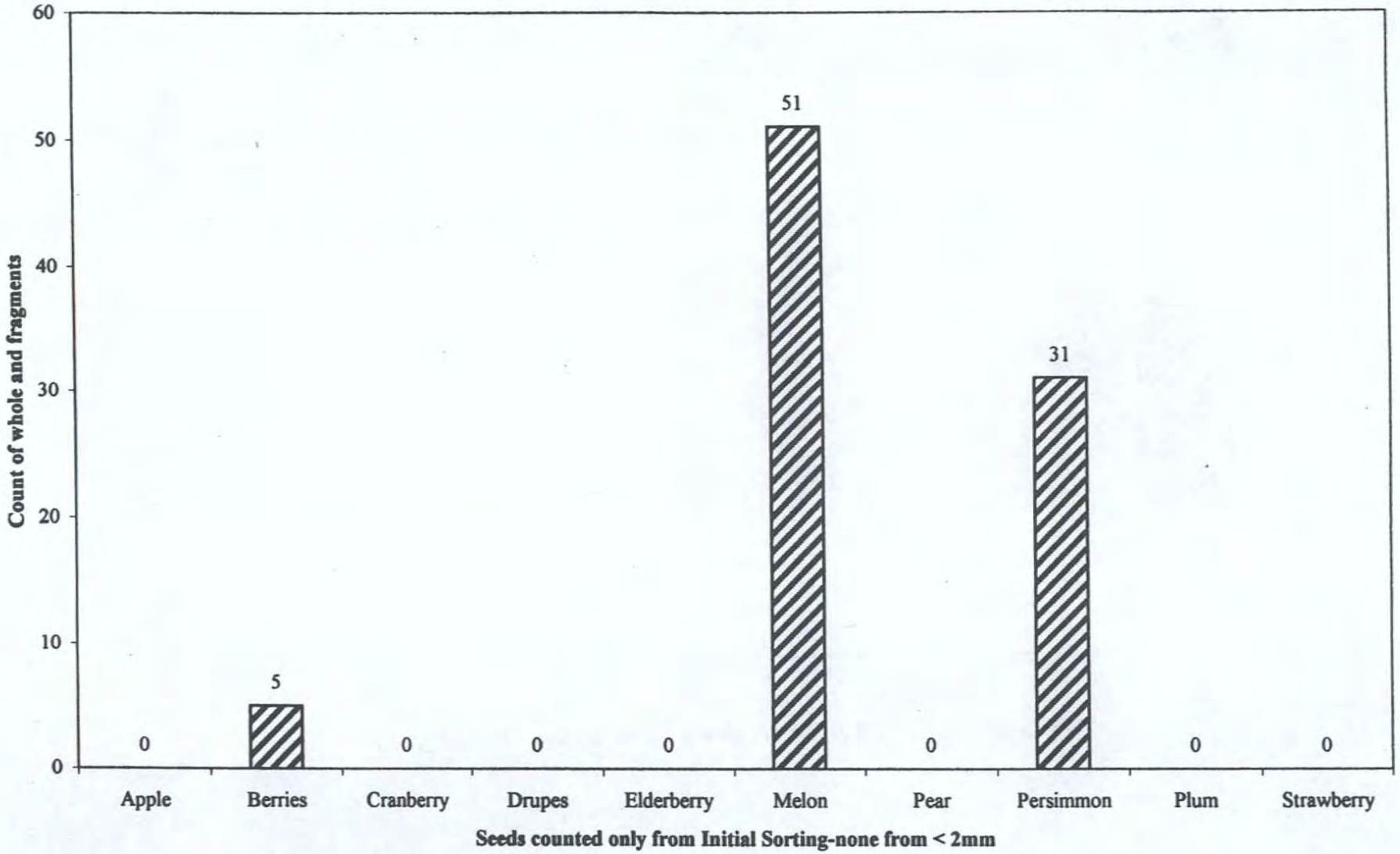

OTV Privy Level 5 Total Major Seed Categories
Count of whole and fragments
3000
2500
2000
1500
1000
500
0
108
263
104
367
1712
2390
2271
190.5
Apple/ pear
Cherry
Fig/Mulberry
Grape
Huckleberry
Raspberry
Tomato
Watermelon
Seeds counted


OTV Privy Level 5 Total Minor "Fruit" Seeds
Count of whole and fragments
30
25
20
15
10
5
0
3
8
3
14
5
25.5
6
3
7
5
Apple
Berries
Cranberry
Drupes
Elderberry
Melon
Pear
Persimmon
Plum
Strawberry
Seeds counted

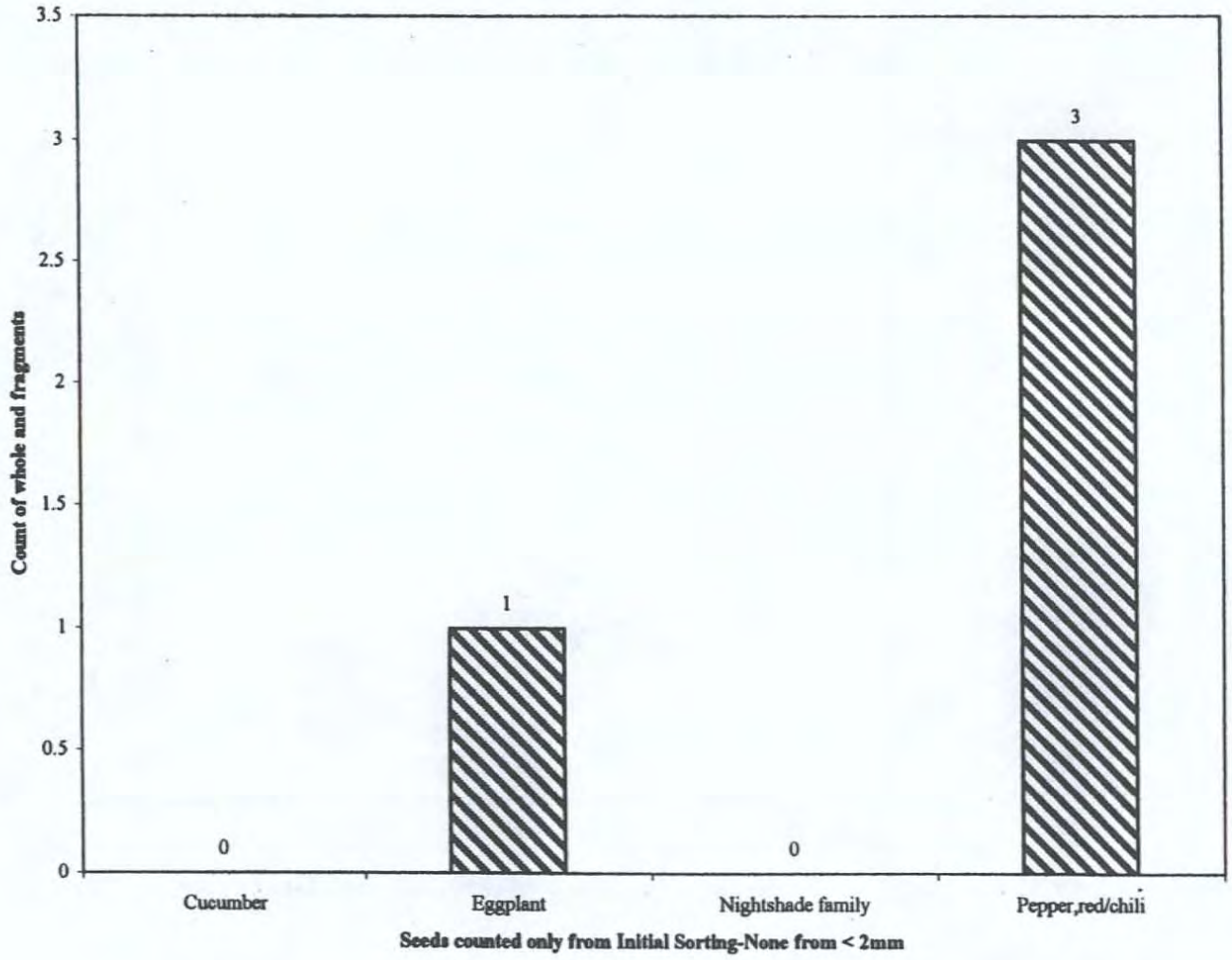
Old Town Village Privy: Level 4

	Initial Sort >2 mm	
Seeds and...	Quantity	Wt (g)
Apple	0	0
Apple/ pear	85	2.2
Berries	5	0.3
Brassica	0	0
Cheno/Am	0	0
Cherry	398	43.5
Chestnut	6	0.02
Citrus	0	0
Cloves	0	0
Coffee bean	0	0
Coriander	0	0
Cranberry	0	0
Cucumber	0	0
Cucurbit	0	0
Dock	0	0
Drupes	0	0
Eggplant	1	0.01
Eggshell	15	0.7
Elderberry	0	0
Fig/Mulberry	0	0
Fishscale	9	0.05
Foxtail/grass	0	0
Fungi	0	0
Grape	243	8.5
Hickory nut	0	0
Huckleberry	5	0.05
Lemon	0	0
Malva-like	0	0
Melon	51	7
Nightshade family	0	0
Orange	0	0
Peach	0	0
Peanut	0	0
Pear	0	0
Pepper,red/chili	3	0.05
Persimmon	31	4.2
Plum	0	0
Pokeweed	0	0
Pondweed	0	0
Raspberry	8	0.05
Sedge	0	0
Smartweed	0	0
Smartweed/Dock	0	0
Spurge	0	0
Strawberry	0	0
Thistle	0	0
Tomato	555	1
Viburnum	4	0.2
Walnut, Amer.	0	0
Watermelon	230	9.3
Unknown	1	0.05
Unknown nutshell	0	0
Unknown sesame-lil	0	0
Beetle parts	0	0
Insect/larvae	5	0.05
Fruit skins	10	0.01
Not anaylzed	0	658.7
Misc. beads/stones	1	0.24
Waste		417.7
Charcoal	19	1.5
metal	3	3
Bone	46	4.16

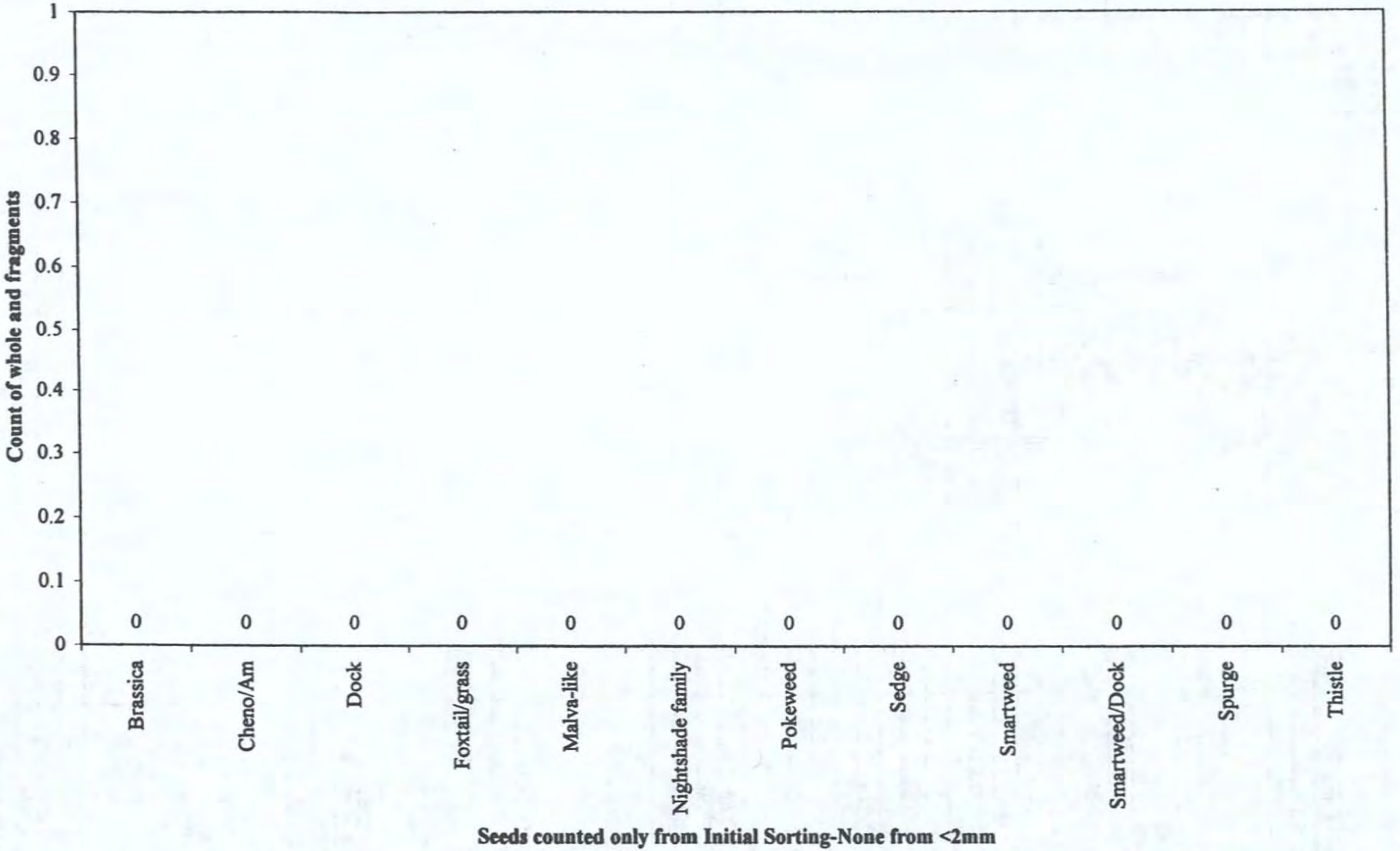

OTV Privy Level 4 Major Seed Categories
Count of whole and fragments
600
500
400
300
200
100
0
85
398
0
243
5
8
555
230
Apple/ pear
Cherry
Fig/Mulberry
Grape
Huckleberry
Raspberry
Tomato
Watermelon
Seeds counted


OTV Privy Level 4 Total Minor "Fruit" Seeds
Count of whole and fragments
60
50
40
30
20
10
0
0
5
0
0
0
51
0
31
0
0
Apple
Berries
Cranberry
Drupes
Elderberry
Melon
Pear
Persimmon
Plum
Strawberry
Seeds counted only from Initial Sorting-none from < 2mm

OTV Privy Level 4 Total Minor "Vegetable" Seeds



OTV Privy Level 4 Total Weed Seeds



Old Town Village Privy: Level 2										
	Initial Sort >2 mm		Sample 1 > 15 g > 2 mm		Interim		Sample 2 > 15 g > 2 mm		Sample 3 > 15 g > 2 mm	
Seeds and...	Quantity	Wt (g)	Quantity	Wt (g)	Tally	Wt (g)	Quantity	Wt (g)	Quantity	Wt (g)
Apple	20	5.5	3	0.05	23	5.55				
Apple/ pear	20	0.3	14	0.1	34	0.4				
Berries	0	0	1	0.8	1	0.8				
Brassica	0	0	0	0	0	0				
Cheno/Am cf.	0	0	0	0	0	0				
Cherry	82	8.1	2	0.1	84	8.2				
Chestnut	0	0	0	0	0	0				
Citrus	0	0	0	0	0	0				
Cloves	0	0	0	0	0	0				
Coffee bean	0	0	0	0	0	0				
Coriander	0	0	0	0	0	0				
Cranberry	0	0	0	0	0	0				
Crataegus cf.	0	0	0	0	0	0				
Cucumber	11	0.04	7	0.04	18	0.08				
Cucurbit	0	0	0	0	0	0				
Dock	0	0	0	0	0	0				
Drupes	0	0	0	0	0	0				
Eggplant	0	0	0	0	0	0				
Eggshell	11	0.04	12	0.2	23	0.24				
Elderberry	0	0	0	0	0	0				
Fig/Mulberry	0	0	0	0	0	0				
Fishscale	0	0	0	0	0	0				
Foxtail/grass	0	0	0	0	0	0				
Fungi	0	0	0	0	0	0				
Grape	32	1.1	63	1.6	95	2.7				
Hickory nut	0	0	0	0	0	0				
Huckleberry	0		1	0.8	1	0.8				
Lemon cf.	0	0	0	0	0	0				
Malva-like	0	0	0	0	0	0				
Melon	17	0.3	1	0.05	18	0.35				
Nightshade family	0	0	0	0	0	0				
Peach	1	0.18	0	0	1	0.18				
Peanut	17	0.62	0	0	17	0.62				
Pear	12	0.4	0	0	12	0.4				
Pepper,red/chili	0	0	4	0.05	4	0.05				
Persimmon	2	0.12	0	0	2	0.12				
Plum	3	0.66	0	0	3	0.66				
Pokeweed	1	0.01	0	0	1	0.01				
Pondweed cf.	0	0	0	0	0	0				
Raspberry	7	0.01	21	0.08	28	0.09				
Sedge	0	0	0	0	0	0				
Smartweed	0	0	1	0.01	1	0.01				
Smartweed/Dock	0	0	0	0	0	0				
Spurge	0	0	0	0	0	0				
Strawberry	0	0	0	0	0	0				
Thistle-like	0	0	0	0	0	0				
Tomato	200	0.32	533	0.8	733	1.12				
Viburnum	4	0.25	0	0	4	0.25				
Walnut	0	0	0	0	0	0				
Watermelon	77	2.8	13	0.05	90	2.85				
Unknown	0	0	0	0	0	0				
Unknown nutshell	0	0	0	0	0	0				
Unknown sesame-like	0	0	0	0	0	0				
Beetle parts	0	0	0	0	0	0				
Insect/larvae	0	0	0	0	0	0				
Fruit skins	64	0.42	50	0.4	114	0.82				
Not anaylzed	0	0	0	0	0	0				
Misc. beads/stones	0	0	1	0.1	1	0.1				
Waste	0	0	0	12	0	12				

	L. 5	L. 4	L. 2
Cherry	263	398	84
Chestnut	3	6	0
Grape	367	243	32
Hickory nu	0	0	0
Peach	0	0	1
Peanut	1	0	17
Persimmon	3	31	2
Plum	7	0	3
Walnut	0	0	0
Watermelo	190.5	230	77

OLD TOWN VILLAGE PRIVY: LEVEL 2 CATEGORIES

Seeds and...	Tally
Apple	23
Apple/ pear	34
Berries	1
Brassica	0
Cheno/Am cf.	0
Cherry	84
Chestnut	0
Citrus	0
Cloves	0
Coffee bean	0
Coriander	0
Cranberry	0
Crataegus cf.	0
Cucumber	18
Cucurbit	0
Dock	0
Drupes	0
Eggplant	0
Eggshell	23
Elderberry	0
Fig/Mulberry	0
Fishscale	0
Foxtail/grass	0
Fungi	0
Grape	95
Hickory nut	0
Huckleberry	1
Lemon cf.	0
Malva-like	0
Melon	18
Nightshade family	0
Peach	1
Peanut	17
Pear	12
Pepper,red/chili	4
Persimmon	2
Plum	3
Pokeweed	1
Pondweed cf.	0
Raspberry	28
Sedge	0
Smartweed	1
Smartweed/Dock	0
Spurge	0
Strawberry	0
Thistle-like	0
Tomato	733
Viburnum	4
Walnut	0
Watermelon	90
Unknown	0
Unknown nutshell	0
Unknown sesame-lik	0
Beetle parts	0
Insect/larvae	0
Fruit skins	114
Not anaylzed	0
Misc. beads/stones	1
Waste	0

Major Category	
Apple/ pear	69
Cherry	84
Fig/Mulberry	0
Grape	95
Huckleberry	1
Raspberry	28
Tomato	733
Watermelon	90

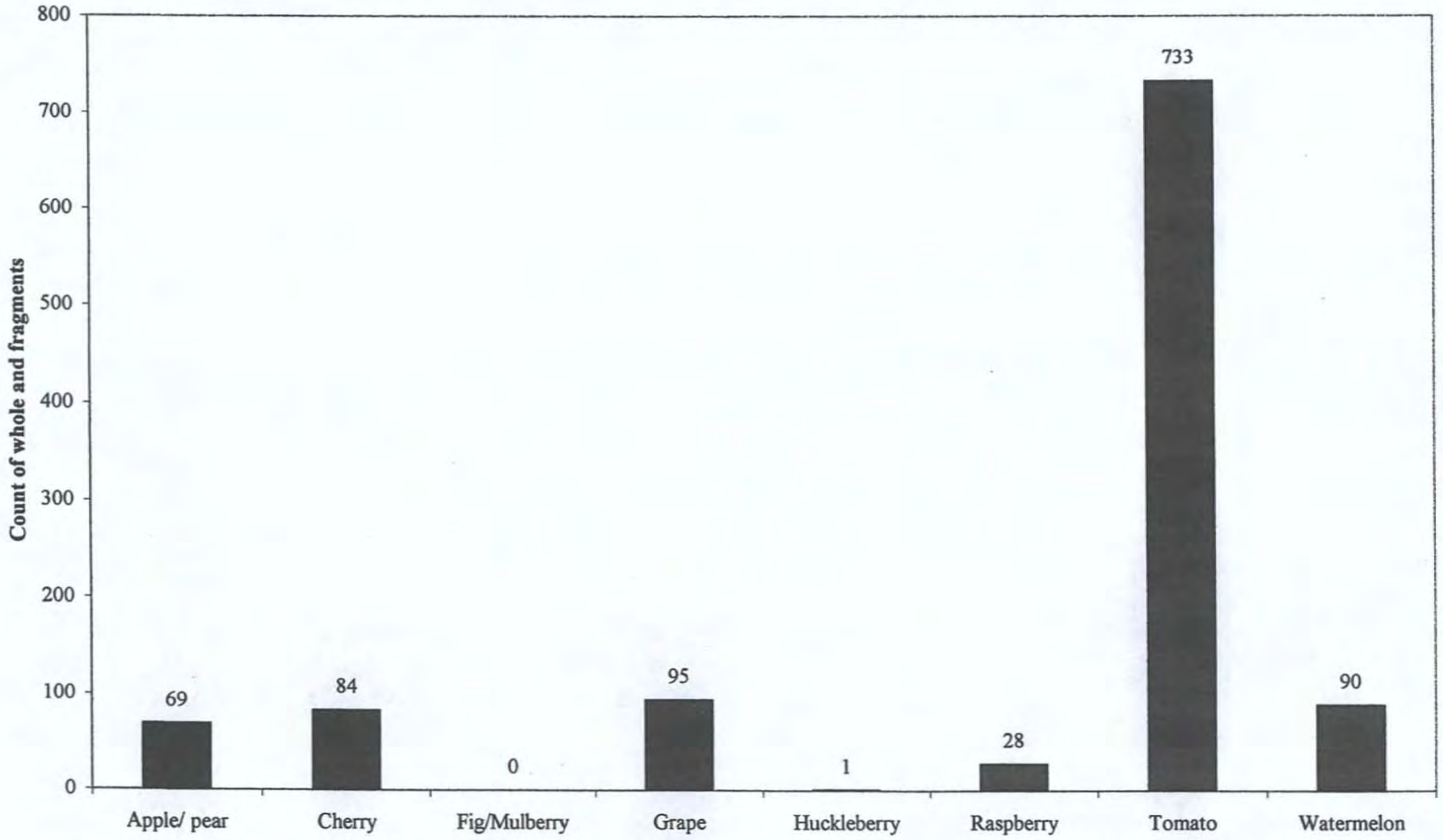
Minor Category	
Apple	23
Berries	1
Citrus	0
Cranberry	0
Elderberry	0
Melon	18
Peach	1
Pear	12
Persimmon	2
Plum	3
Strawberry	0

Minor Vegetable Category	
Cucumber	18
Cucurbit	0
Eggplant	0
Nightshade family	0
Pepper,red/chili	4

Weed Category	
Brassica	0
Cheno/Am cf.	0
Dock	0
Foxtail/grass	0
Nightshade family	0
Pokeweed	1
Pondweed cf.	0
Sedge	0
Smartweed	1
Smartweed/Dock	0
Spurge	0
Thistle-like	0

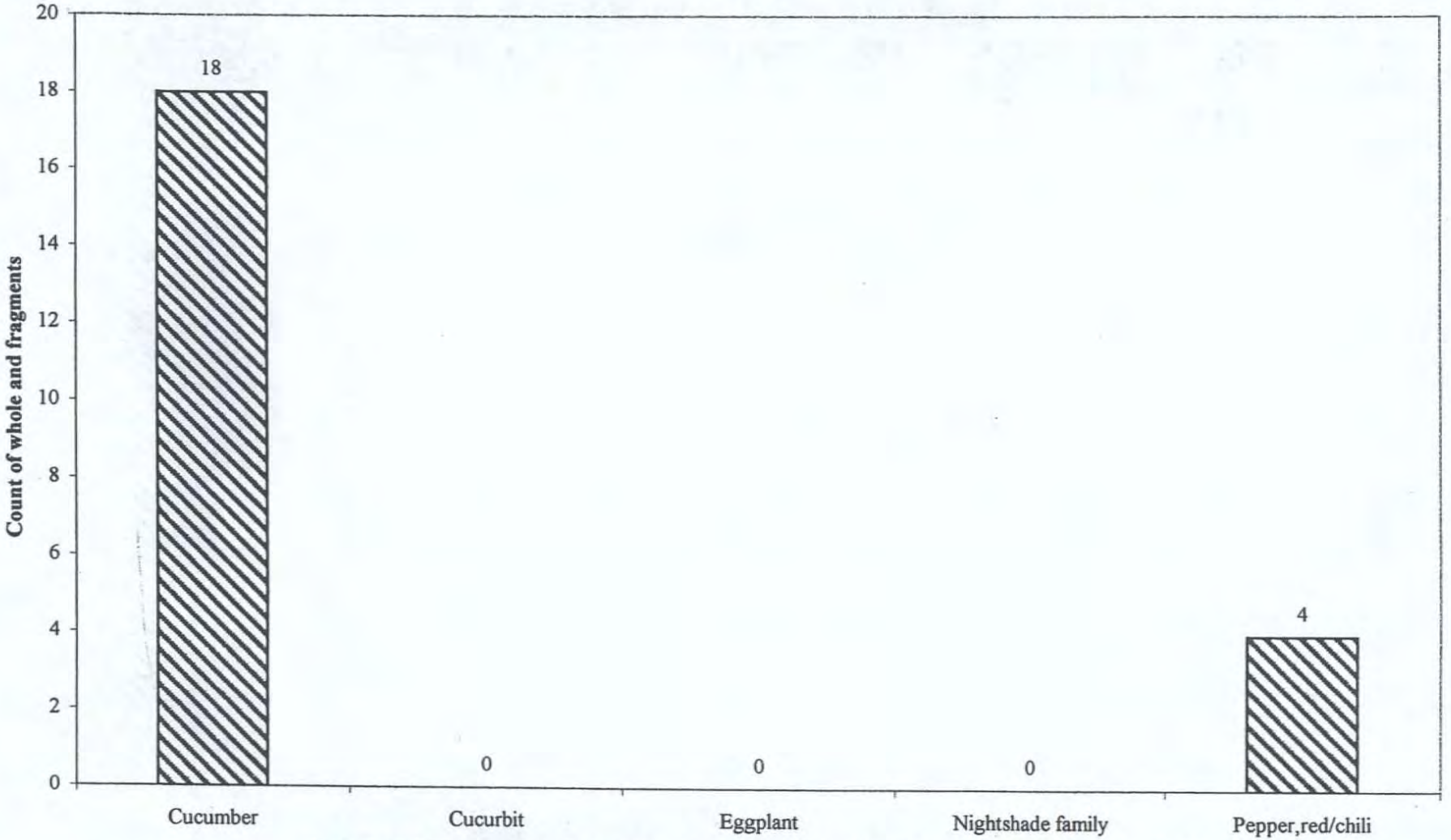
w/o < 2mm size the weeds don' t appear

OTV Privy Level 2 Major Seed Categories



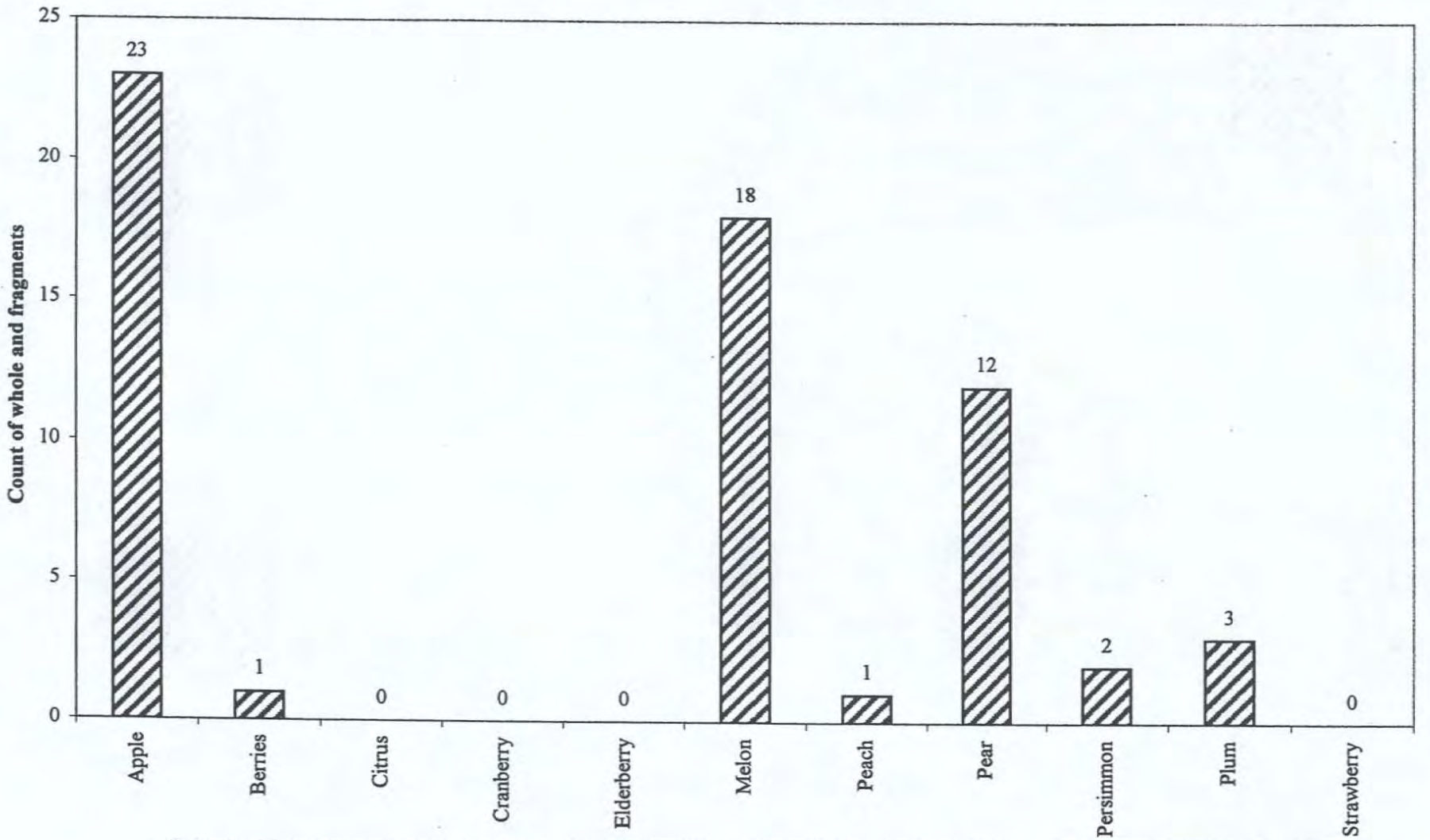
Only the initial sort and 1 > 2mm sample were sorted, limiting the comparisons with other levels

OTV Privy Level 2 Minor "Vegetable" Categories



Only the initial sort and 1 > 2 mm sample were sorted, limiting the comparisons with other levels

OTV Privy Level 2 Minor Fruit Categories



Only the initial sort and 1 > 2mm sample were sorted, limiting the comparisons with other levels. Very few small seeds appear.