UC. Berkeley Archaeobotanical document #41

Catalhoyuk Archaeobotany Procedures.

2/22/99 Christine Hastorf and Julie Near

On Site:

Regular samples: The sampling strategy for the 1999 field season should be to collect a sample from all excavated units with matrix using bulk soil collection. In units containing midden or other secondary, mixed soil matrices, a scatter sample is requested in addition to the bulk sample. Ideally these samples should be 30 liters. In certain excavation units primarily floor contexts, several soil samples from the same unit are taken for flotation. They receive different sample numbers. These have been taken at one meter intervals across the unit. Many of the units were not large enough to provide the target volume, thus the range of sample sizes turn up. It is of value to discuss this with the excavators at the beginning of the field season.

Field priorities: Get choosen on site tours called specialist tours, choose units and samples together based on excavator and specialist interests, flag them, make sure that they get to the float machines, get them floated, dried, and sorted ASAP (both light and heavy). Note in **archaeobotanical notebook** all units and floats chosen as field priorities, with their results, your synthesis, as well as other input and notes from the lab. You will present your results o the tour. **(give them several examples of our notes)** Has a different process of sorting and form filling-see **Field Sort** below for details on this sorting strategy.

Priority Tours

What has been done in the past-

-Samples that are to be discussed are field sorted and some information about each one is written down in the archaeobotany book for the discussion at the trench in a few days time. Usually each specialist gives a short report on the contents of the sample and what it might mean. We tend to include standardized densities of plant remains, including the heavy residue remains/densities of all artefacts categories. This gives the tour attendees comparable evidence. Then a discussion of each unit with the group and the excavators is conducted. You should take notes on the important points of this discussion below the botanical information for that tour. This provides a central place for information on these discussed units.

-After the discussion, new choices are made for the following tour in a few days time.

-Someone must take the responsibility to tell Anja which samples have been chosen so she can add those unit numbers to the master list for the season.

-Only units which have been finished - digging completed- should be selected, otherwise the flotation samples won't make it through the system in time for the tour.

-Some samples are selected for priorities, but are not included in the group priority tour lists. For example, botanists like to know the units of the hearths or ovens even if they aren't going to be discussed on a group tour, and micro faunalists will always want to know about owl pellets. These additional priorities should also be recorded in the archaeobotany book.

All notes will be kept in the one archaeobotany notebook. This will be sent around with whomever is on the tour. All interesting archaeobotanical notes should be kept in this book. It will be a group effort. Sign or initial your entries if more than a small note.

Screen botanicals:

a) train on site screeners to check for all charred (and uncharred if appropriate) objects.

b) get them from the excavators, make sure that is a place for excavators to leave them for you.

c) identify, count, weigh and describe samples; note down on the forms made up for these samples. Describe taxa if possible. These might be quite dense this season.

At the Flotation Machine area:
flotation processing, recording, cleaning, drying, and bagging:

Regular Samples:

We have two operating flotation machines, both petrol driven. The first machine was built in 1995 by Ann Butler of the Institute of Archaeology, London and was based on the Ankara system design using a 55 gallon oil drum as the flotation tank. We altered it a bit in 1996. The second machine was built (from scratch by a local welder, Haji Yusef , located out at the industrial park to the South of Cumra; tel. number 447-3383 , Adanan, Khan, Ali, and Mehmet know him and where he is located) in 1996 and was based on the SMAP design. The large system will probably need Haji if the inner bucket wears out, Haji saltered the mesh to the circle. It has a 75 cm diameter flotation tank (compared to a 56 cm diameter of a normal oil drum). Both of the machines use a .5mm aperture for the heavy residue capture or stainless steel in the inner bucket or .5 mm plastic mesh for the little machine (from scientific houses) to recover the heavy residue (we bring this from the US and try to have enough to replace these if needed). The light residue is caught in a piece of chiffon clipped to a bucket with mesh on the bottom with an aperture of .34 mm. If this catching mesh gets clogged or full, it can easily be replaced, making sure that the water is stopped or the inner bucket is pulled away, so as not to lose the residue while changing it. Both systems use recycled water from their individual two tank settling system and drum, with a filtered hose that moves the water from the final tank to the pump. Due to the particularly silty nature of the samples and the site's soil, the tanks require complete cleaning of both the settling tanks once a week and the flotation drum every afternoon if used all day long. We have created artificial ponds to receive the sludge and water. These should be dug out well at the beginning of the season as well as periodically during the season as needed to keep the mud flowing away from the flotation set up.

Samples are selected to be floated by each machine based on the size of the sample, with smaller samples going to the Ankara machine (called the small machine) and larger samples going to the SMAP machine (big machine). Although it is our feeling that the machines were comparable in effectiveness, we conduced an experiment in order to test the recovery rates of the two machines. So far from the 3 samples that have been looked at we have gotten the following results:

Big machine (one sample) - 100% recovery
Little machine (two samples) - 100% and 96 % recovery

The Big machine: Samples for the big machine tend to be over 20 liters (more than one bucket of matrix). First a flotation number is recorded on the tags and in the log (FL #). This number should always be placed on the back of all tags. The chosen bags of soil are poured into the calibrated buckets. After rocking it back and forth to be systematic in measuring all volumes, the volume is recorded in the float log that also includes the full provenience as well as date of floating, who are the floaters and if modern seeds are added to test the machine. 50 charred seeds (we have been using coriander seeds from the local market, charred in tins of soil (seeds wrapped in aluminum foil) in the kitchen)are added blind in one sample's soil per day per machine. These seeds are counted and placed in gel caps for easy use.

- Place the inner bucket back into the drum, with the two noses snug against each other and the upper one sticking out as much as possible. The thin sponge helps to keep the flow all into the upper inner bucket. New sponges should be added regularly
- the chiffon must be moistened and pegged in place on the little light residue bucket.
- Place the small light residue bucket on the two hooks making sure the water all lands in the center of the chiffon "cup".
-One must check that the pouring spout is snug with the main float tank. All of the pouring off water from inside the inner bucket should go into the chiffon.
-The soil in the buckets, once recorded and the float machine is clean and prepared with the chiffon, is poured slowly into the machine. The water pressure should be moderate at this point. While this happens the hose sprayer sprays water on the soil gently as it lands in the water. This wets the soil and gets it to separate from the charred plant remains.
-After all soil is in the inner bucket, allow a few minutes to go by for the soil to moisten. Once done, we begin to jiggle the inner bucket pulling the handles up and down as well as twisting it back and worth horizontally.
-It is important to keep the light residue chiffon clean of silt and clay. This is done by regularly spraying the chiffon on its sides, not to directly "hit" the charred plant remains. this is done with the second hose and sprayer.
-After a few minutes, the flow of water is slowed down and cut off so allow the water to stop movement and for plant remains that are hovering in the water to quietly surface. Then after about 2-3 minutes, the water gate is opened again to a steady force and, using the tea strainer, one helps the newly floated material into the chiffon mesh.
-Continually one uses the tea strainer to check how clean the water is for that sample. It normally takes at least 20 minutes to get a sample clean. For some samples, this jiggling and shutting the water off must occur several times.
- This running the water and cleaning/checking with the tea strainer is kept up until the water is fairly empty.
- Then the water is shut down and the water siphon is used to also catch the hidden charred remains that are circulating in the inner bucket water but are not willing to float to the surface (those bums). To get this flow going, one must suck on the small end of the tube to get the water flowing and then once going it is poured into the chiffon, keeping the chiffon bucket lower than the siphon in the inner bucket. Once done for 2-3 minutes, as the siphon is kept 3 inches above the bottom material and moved gently around, it is removed and clean water from one of the sprayers is run through it to make sure no plant remains are lodged in it. It is put aside and kept for the next sample.
-When the water in the inner bucket has no more charred floating material and the matrix sitting on the bottom of the inner bucket mesh is clean of fine soil, one can take the sample out of the machine.
-Once the water is clear of charred matter, one can put the two residue fractions away. The light fraction in the chiffon is unclipped and tied up with the original tag and string that had been around the bag that carried the matrix from the excavations. This tied dumpling (of one or more chiffons with material within, is hung up in the shade using a cloth peg in our little float "hut". If there is nore than one bag, make sure that each chiffon dumpling has its own tag. This is usually done by the archaeobotanist on duty. The inner bucket is slowly lifted up out of the water, (making sure that the spout is raised up so that no water or matrix spills out into the settling tanks) with a moderate flow at this time. Only remove this inner bucket when you think the sample truly is done and not before, it will contaminate the sample otherwise.
-This then is carried over to one of the large laid out plastic bags (flour sacks) that already has received one of the inner tags sitting under a stone as well as the float number of the sample written with a large perm ink pen on duct tape, visible to those with the inner bucket. The inner tag stays with the heavy residue and eventually ends up with the botanical matter. The emptying of the inner bucket requires care. Two people are needed. One holds the inner bucket at an angle while the other uses the hose to gently and carefully

channel the material to flow onto the middle of the plastic bag (flour sack). Once all of the matrix is on the bag, this bucket is taken away from the samples and given a quick blasting clean with the hose, making sure all charred material is removed from the inside of the bucket and mesh. This is now ready to be replaced in the drum for the next sample.

The Little machine: Samples for the little machine tend to be under 20 liters (only one bucket). A flotation number is recorded on the tags and in the log when it is being recorded. This number should always be placed on all tags. The chosen bag of soil is poured into the calibrated bucket and systematically rocked and measured. The volume is recorded in the float log that also includes the full provenience as well as the float date, team, and if modern seeds are added to test the machine. 50 charred seeds are added blind in one sample per day per machine.

- Place a clean plastic mesh into the full drum of water, attaching it with a minimum of folds by clothes pegs. Make sure that the edges are well out side the pegged area.
- the moistened chiffon must also be pegged in place on the little light residue bucket.
- Place the small light residue bucket on the two hooks making sure the water all lands in the center of the chiffon "cup".
- All of the water from the drum must land in the center of the chiffon.
- With the float machine ready to go, clean and prepared with the chiffon in bucket < the sample recorded in the float log, the matrix in the bucket is poured slowly into the machine. The water pressure should be moderate at this point. While this happens the hose sprayer sprays water on the soil gently as it lands in the water. This wets the soil and gets it to separate from the charred plant remains as well as keeps it from going onto the chiffon.
-After all soil is in the inner mesh, allow a few minutes to go by for the soil to moisten. Once done, we begin to jiggle the mesh by pulling the sides of the mesh up and down.
-It is important to keep the light residue chiffon clean of silt and clay. This is done by regularly spraying the chiffon on its sides, not to directly "hit" the charred plant remains. This is done with the second hose and sprayer.
-After a few minutes, the flow of water is slowed down and cut off to allow the water movement to stop so for plant remains that are hovering in the water to quietly surface. Then, after about 2-3 minutes, the water gate is opened again to a steady force and, using the tea strainer, one helps the newly floated material into the chiffon mesh.
-Continually one uses the tea strainer to check how clean the water is for the current sample. It normally takes at least 20 minutes to get a sample clean. For some samples, this jiggling and shutting the water off must occur several times.
- This running the water and cleaning/checking with the tea strainer is kept up until the water is fairly empty.
- Then the water is shut down and the water siphon is used to also catch the hidden charred remains that are circulating in the inner bucket water but are not willing to float to the surface (those bums). To get this flow going, one must suck on the small end of the tube to get the water flowing and then once going it is poured into the chiffon, keeping the chiffon bucket lower than the siphon in the inner bucket. Once conducted for 2-3 minutes, as the siphon is kept 3 inches above the bottom material and moved gently around, it is removed and clean water from one of the sprayers is run through it to make sure no plant remains are lodged in it. It is put aside and kept for the next sample.
-When the water in the inner bucket has no more charred, floating material and the matrix sitting on the bottom of the inner bucket mesh is clean of fine soil, one can take the sample out of the machine.
-Once the water is clear of charred matter, one can put the two residue fractions away. The light fraction in the chiffon is unclipped and tied up with the original tag and string that had been around the bag that carried the matrix from the excavations. This tied dumpling (of one or more chiffons with material within, is hung up in the shade using a cloth peg in our little float "hut". This is usually done by the archaeobotanist on duty.

-The large inner mesh is slowly lifted up out of the water, with a moderate flow at this time. Only remove this inner mesh when you think the sample truly is done and not before.
-This then is carried over to one of the wooden prepared surface up against the little brick house.
-The mesh is laid out and the inner tag is placed under a stone. The mesh receiving the float number of the sample written with a large perm ink pen on duct tape is visibly placed on the mesh. This inner tag stays with the heavy residue and eventually ends up with the botanical matter.

For both heavy residues procedures, it is often the case that one needs to return and visit them if they are big. To aid in drying, gently separate your fingers and carefully spread out the matrix for maximum airing.

Mini float procedures: When the samples are very small, one liter or so, we simply place the soil into a bucket with a chiffon mesh piece clipped to the edges of the bucket. We **GENTLY** spray the sample to help the silts move through, and once the water has reached the level of the chiffon we use the chiffon square itself to move the materials around by pulling at the edges. Once the silts are gone what is left is a sample with both the botanicals and the all of the heavy residue (HR). The chiffons are tied up with string and dried like normal flot. samples. Once they are dry, they are transferred to plastic bags in the lab. These samples are then sent through the HR process, but instead of having the sorters pull out the bots, they only pull out the other materials, and the rest is left to be sorted in the botanical laboratory with normal sorting procedures. Such mini-samples should be recorded in the flot log and receive a flot. number like the larger ones. A flotation number is recorded on the tags and in the log when it is being recorded. This number should always be placed on all tags. A comment indicating that the sample was floated in this manner should be recorded in the flot. log.

Odds and Ends regarding floating:
-Make at least 4 calibrated buckets, two for each machine at the beginning of the season.
-Always have two tags per sample, if one is lost, make another on the spot (keep blank ones in your pocket), add flot number to all tags. This number is assigned out by the tanks.
-Someone should watch the float assistants at all times, also to record the data in the flot log as well as keep the recovery rate systematic and perfect!!
- While watching over the floaters, make sure they are slow-fast enough, do not empty water before clean of charred items.
-Only use sharpies- perm ink and tyvek tags on all float items.
-Clean all flot basins once a week if not more frequently. You need sticks and sometime people even get into the tanks to move the mud through. The long hose in front of the labs must be brought over to clean the tanks and then fill them up. These tanks need to fill all night long, or all afternoon if just the drum is cleaned.
-Check valves, all meshes, sprayer regularly for leaks.
-Change oil in machine of the little machine two times a week if the machine is used all day every day. Record when you do this in the flot log.
-The flot log should be regularly entered into an excel file. This helps to locate flotation samples during the season.
-The local float team: Rizza is basically in charge of the workers on the flot machines. He really prefers to work on the small machine. He knows how to work the motors and has helped out with welding in the past. He changes the oil. He knows the process well, but he often becomes careless. I think he respects his job, but I'm not sure that any of them really think that the bots are that important, thus, missing a few is something that doesn't bother them. Rizza can do the small machine alone, but he likes it better with 2 people.

The big machine really needs 2 people as the inner bucket is difficult to lift on one's own. We, the flot supervisors, do the recording in the flot log and adding flot numbers on the tags. This includes writing in the volumes of the flots after they have been measured. We also try to keep the bags moving by filling and recording the volumes of the buckets and helping out with the other things that happen when a new sample is started.
- The workers- at least the ones who have floated with us before, know the process, but as they get bored they stop focusing on the work. They also like to do things quickly rather than thoroughly, so we like to sort of keep an eye on things. If we don't keep an eye on the procedures they short cut where ever they can. Also, the float area often becomes the party area for other workers so we try to discourage too much of that from happening. Christine always puts them to work, which encourages them to leave!

Petrol: the little machine needs an oil/gas mixture like a motorcycle motor. The big machine take s "super" petrol. The flot supervisors (thats you) must make sure that petrol is always available. When the petrol containers get low ask the men to use up what they can, and send the containers in to town on the next run to be filled in time to keep going.

Complaints floters have had - the male workers feel that flotation is the hardest, and least fun of the jobs at the site (this is Julie's impression anyway). They don't really get breaks other than the scheduled ones, unlike their digging friends, and they feel that they are exposed to the elements more. They don't like to get wet, and generally want aprons and gloves (though they don't always wear them). They complain if they don't have a shelter from the sun, but without the sun it gets too cold with a shelter. So, they go back and forth on that one. And, they will really complain if they don't get hand cream. They feel that they get chapped hands without it, hence we supply it to them. I think stuff can be found in Konya that will do perfectly well. Also, there seems to be a feeling that the dust that arises from the evaporation of the water and dirt is toxic. They think they get sick from it. (So if they complain about that, try giving them dust masks, and then when they don't wear them you can say that they must not be too concerned.)

The On -Site Laboratory Procedures:
Processing the light and heavy fractions:

1) Light fraction processing: Dry samples are brought into the botany lab

a) Samples in chiffon bags are transferred to plastic bags once they are completely dry.

- if a sample is found to be wet place it in an open box or tray to dry. Keep it out of the way of breezes and cats!

b) Labels from chiffon ties put into the light residue zip lock bag and unit, sample, flot number along with area and year written on outside of bag with sharpie (permanent ink pen).

c) Flot log book is updated- a check is placed in the column marked "sample bagged"

d) Samples are moved into storage boxes which are ordered according to unit number.

- boxes should remain accessible so HR can be attached and samples can be pulled out for field sorting if necessary.

e) Priority samples can be pulled immediately and moved to another location where they will wait until they are sorted.

f) Attach heavy residue plant remains as soon as they are available (this can wait until later, but the longer it goes, the more of a pain it becomes)

2) **In field Light Fraction Priority Sample sorting = Field Sorts**

a) Samples that have been identified as priority samples will need to be looked at quickly so they should be pulled as soon as possible after they have been identified as priorities (red flagging tag accompanies the flot as well as highlighting should aid in identifying these samples throughout the process).

b) We have a sorting procedure that has been standardized into a three phase scheme. Priority samples fall between phase one and two and will be described here.

-sorting procedures by phase can be found on a different page.

c) **Field Sorts** (this term is used to identify the quick sorting method used most often on samples sorted in the field).

i) Split sample into 4, 2, 1, and .5 mm sizes using the geological sieves.

ii) weigh each of the sizes and enter these values onto normal sorting recording sheet.

iii) Sort, pull, and identify 100% of the 4mm.

iv) Sort and pull a percentage of the 2mm - generally 50 or 100 percent, but for a really big sample it may be split even more.

v) Scan and record notes on forms the plants seen in the 1mm and .5mm portions.

vi) weigh the larger sieve pulled remains and record

vii) determine a preliminary density of the sample

viii) write **FIELD SORT** on the top of any forms that have been sorted in this manner

ix) store field sorted samples in a different box so that these will not get lost with samples that have had nothing done to them.

d) Other lab sorting

i) Other flot. samples may be sorted - either scanned (phase 1), field sorted, or phase 2 sorted depending on time and research questions of either excavators, archaeobotanists, or other lab specialists.

ii) Follow normal sorting procedures and make sure that the recording sheet indicates exactly what was done to the sample and where it is destined for.

2) Heavy Residue (HR) processing:

1) Dried samples bagged in large zip lock plastic bags, with tags and provenience written on the outside. These are collected from the flot area and brought to the sorting area in plastic bags. This is the long table where the local women work.

a) a tag should already be in the bag at this point

b) the label information should be written in permanent pen on the outside of the bag

c) if a sample is still wet (and perspiration is noticed on the inside of the bag) it should be opened and sorted carefully in an upright position until it has dried.

d) a temporary storage area for samples that are waiting to be sorted should be created in a protected area.

- watch out for "sharp cement" on the side of the buildings which can tear plastic bags and cause samples to leak.

2) **Organization of Heavy Residue sorting** (the outside veranda tables) One or two people should be overseeing this every work day. Your job will be to make sure they are there and to maintain quality control. You should be overseeing these steps not necessarily doing them.

a) Supplies needed every day at 7 AM on the tables

1) Large Trays
2) Forceps - there should be one per women sorting.
3) Fine sharpies
4) Labels for various areas (tyvek already preprinted)
5) Small plastic bags for artifacts

6) Medium bags for remaining residue
7) Big geological sieves
8) HR recording sheets
9) Paint brushes- for cleaning trays
10) <1mm silt bucket- this portion is discarded but it should be discarded well away from the sorting area and out of the way in general.

b) Preparing a HR sample for sorting.

1) Pour the sample through the big geological screens. Shake well- but be careful if there are very large artifacts or mud brick bits in the >4mm. Reshake once each screen has been removed and the contents placed in a sorting tray. Once a particular portion of the sample is in a tray it should have some tags attached to it. Never leave a tray out without a tag. Big samples should go in the bigger trays (1mm or greater size fractions almost always need a big tray). Less than 1mm fractions of the samples are thrown away to conserve space (and none of the specialists are willing to commit the time to sorting the materials from this portion)

2) fill out a form for the sample
a)write the unit information and the flot number on the form.
b) fill in date and sorter
c) place the form under the mother bag on the table

3) create tags for the sample - fill out as much as you can
WRITE CLEARLY
a) write the unit, sample, area, flot number, size (and percentage for 4mm- always 100%) can be filled in.
b) make the remaining residue tags for the 3 sizes
c) make tags for unsorted portions for 2 and 1mm sizes
d) make at least 4 other tags for each of the sizes with as much information as possible

c) **Sorting a sample**

1) Instructions for what percentage should be sorted for each type of artifact should be on the site with HR information. This information can also be found by looking at the percentages written on the HR forms. Generally, everything from the 4mm portion is sorted at 100%. At the 2 and 1 mm levels different amounts are sorted, depending on the artefact type. The most common percentages are as follows: bone 2mm-50%, 1mm-50%, plant 2mm- 50%, 1mm - 25%, shell 2 mm- 25%, 1mm - 25 %, obsidian 2mm- 25%. 1mm - 25% beads - 2mm- 50%, 1mm-50%, same for figurines, egg shell 2mm- 50% 1mm-50%. (This is written on the forms we use.) Each of these percentages was decided upon by the specialists in charge of that data base after the first part of the 1996 field season and we knew what was coming out of the samples as well as how fast the women could work on the material.

a) in the case of very small samples the samples are sorted 100% for each size. They still should be put through the nested sieves to keep things the same for the specialists records.

b) the Turkish word - *Hepsi*- means everything- the whole thing, and this is the term we use to describe a sample or portion of one where everything is pulled out.

c) Once the samples are poured into the trays and the labels are clipped to the sides, the women will deal with splitting the samples, and putting the remaining residue portion in a bag, once they are back in their sorting mode after the long break of the winter. This is 50 % for normal samples at the 2 and 1 mm level. What is left in their tray they will then split again, and one or two people will work on the tray, pulling all artefacts. One half of this remainder (25%) will be sorted for the things that need to be removed - they sort for all of the items in other words. The other portion - the last 25% - will only be sorted for the things that need to be sorted at the 50% level - like bones, egg

shell, and plants at the 2mm. The women know the routine, but they may ask you to double check their early work, to make sure they are systematic (they are terrific about that, being very diligent). Most importantly, the person who is working with them at the table needs to keep track of this sampling strategy to get the tags filled in properly.

2) As the women finish each tray, the sample should be checked over quickly to make sure that everything has been pulled.

3) Tags are then completed and given to the women to put in the appropriate artefact bag.

4) Check marks should be placed next to artifact types on the form if they have been recovered from the sample, noting presence/absence information.

d) When a sample is finished:

1) Gather all bags - small artefacts and remaining residue in bags - and put them inside the "mother bag" sealed.

2) Bring form inside with the mother bag and store in a safe place in the heavy residue area of the laboratory, until they all can be weighed.

e)Weighing samples:

1) One person can do this, but often two make the job faster and more accurate.

2) Pull out all artifact bags from the mother bag.

3) Group the bags into like sizes (making sure the tags are also like sizes).

4) Have one example of each sized bag and tag so that you can "tare" the scale before the weighing begins.

5) Weigh the each bag of artefacts and enter the weights (making sure that the weight of the bag and tag are accounted for) on the forms.

6) Certain remains need to be grouped together. The 4mm bone should be left alone, while the 2 and 1 can be stapled together. The same happens for the obsidian. The other remains can be stapled by groups of all 3 sizes.

f) Storage of "completed" samples:

1) Once a sample is totally completed, the sorted and weighed remains get put in boxes by category to then be distributed to the specialists. Each specialist needs to have a box, and usually we end up doing the distribution to them when the boxes get full. If we don't it just piles up and spills.

2) The remaining residues in the mother bags can then be stored permanently . We put them in blue crates and create a list of the samples that are in the crate to be taped to the outside of the box. This information, with the coordination of the Finds people, should be computerized.

3) Filled blue crates can then be stored where the finds people direct.

Packing/ Shipping and Museum Requirements - begun at the start of the field season

What samples are shipped out of the site.

1) All of the botanical samples from flotation can be shipped out of the country

2) No non-botanical artefacts can leave, all artefacts should be placed in the care of the finds people ultimately.

3) Heavy residues should be attached to the light residue flot bags for organizational purposes, before the flots are sent out of the country.

4) Screened bots are identified and recorded with in the on site botanical laboratory, the non wood materials separated from the wood. The wood should be looked at for dendrochronological purposes, and the wood that isn't useful for that (most of it) should probably be gotten ready for Eleni Asouti in London to be discussed... Other non wood items can be shipped with the flot samples.

Lists to be made and kept up to date:

flot log
screen bots
flots by bag to be shipped out

How they should be organized

1) Lists of all different collection type samples must be made.
2) Lists should be made in unit order (can be ordered by the computer.
3) The weights of each sample should be recorded on the bags and on the list.
4) The flotation samples tend to be stored in the large plastic bags (Turkish flour sacks). **The bags which will be stored in one flour sack should be numbered so that they can be cross referenced.**
5) Flour sacks should be organized sequentially by unit numbers in 100 unit groupings.
6) Write the sack number and group of samples -i.e. 3800's - on the bag for easy access.
7) At the end of the season, each bag (or more than one bag) will go in a box- plastic red box, crate, etc.) for shipping.
8) Make sure that lists correspond exactly with the contents of each bag.
9) Wendy has list templates.
10) In preparation for official checking, place one list in the bag, and one list outside the bag for the museum to check.
11) Check to make sure no new requirements are required by the authorities, sooner rather than later.

How the samples are checked

1) Samples are first checked in the field by the on-site Reps. They will go through and match the bags to the lists.
2) A temporary seal is then placed on each checked bag.
3) Bags then go to the museum where the papers are officially signed.
4) A more permanent lead seal is then placed on each bag.

Boxes for shipping - In the last 2 years we have been using red and blue plastic boxes for shipping. They are relatively cheap and are reusable. Wooden boxes that we had built in Cumra broke and were very costly. If you run out of these plastic boxes with good lids, cardboard boxes can be used as long as the samples are double boxed and they are well taped.

Packing samples

1) Make sure that samples are secure in the boxes.
2) Label the boxes with as much information as possible.
3) If necessary add padding to the boxes so materials don't drift around.

A Typical Daily Schedule

Before work day starts-

At the Flotation area: -make sure that flot machines are filled and ready.
-transfer dry heavy residues to bags to make room for new samples.
- organize samples to be done for the day (or at least the first set) and put any priorities in the front of the line if not done at the end of the previous day.

At the Heavy Residue Area: - bring out supplies for sorting
-get a sample out, sieved and the form and labels begun so that the women can start when they arrive.

The day has been divided into four work parts previously during the field seasons:
First Segment (7-9:30AM), Second Segment (10-12),Third Segment (12:45- 3), Fourth Segment: (5-7)

We only flot during the first three segments. One person should be at the flotation area with the workers the first three segments. the fourth is a lab session. If you have the personnel, rotate this.

Priority tours- one archaeobotanist should go and record the events and give reports, we alternate this usually. This usually occurs right after morning tea.

Sort Priority Samples, when you can.

Provide Field Help - questions on botanical remains.

Watch over Heavy Residue volunteers.

The fourth segment is laboratory time. This is the time when all botanical remains are generally bagged and recorded. Sample sorting continues, HR weighing occurs, filling out flot log information, screened bot analysis, recording on the computer. These activities often continue after dinner, but that is voluntary.