Keeping Track of Your Plants

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gim

Once upon a time I had developed a Macintosh program to keep track of our plants. It was so useful I decided to try to market it. During a collaboration with the Lewis Ginter Botanical Garden in Richmond, Virginia, over the course of many months, I added the features and capabilities needed by public gardens. These were primarily related to security, multiple users at different job levels, multiple plants acquired at one time, data entry audit (who edited what data when), and exchanging data with other public gardens in an industry-standard format. I then marketed it as "gim, the garden inventory management program for the Macintosh". Eventually I removed many of the features not needed by a private user, and sold it as "gim jr" to a few serious home gardeners.

gim has two major components that work together: a plant database and a garden map. The database includes a comprehensive set of data elements, reports and preference settings to cater to the needs of a wide variety of users. The database program allows the user to maintain a set of defined entries for each data element and use only those defined entries for data entry, to enforce the consistency needed for successful computer use. The garden map program creates a base map (see Figure 1) with user-assigned dimensions and scale, and provides tools for drawing the garden map on that base map. It then puts a

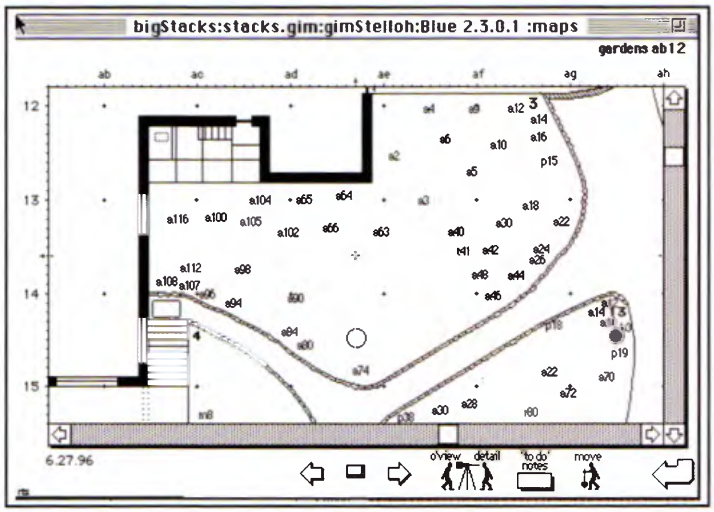

Figure 1. Example Garden Map, in this case from the former Stelloh garden in Darnestown, Maryland. (gim screen shot by Bob Stelloh)

label for each plant on the map based on their user-assigned x,y coordinates (or based on the user dragging the plant label to the right spot on the map). It includes two-way links between the map and the database for each plant, such that a change in the database changes the data on the map, and vice versa-absolutely necessary to keep the data consistent.

Using a Spreadsheet

Instead of becoming a programmer and doing all that, you can use a spreadsheet to keep the data for your plants if you are willing to forgo the mapping and the enforcement of data entry standards. The basic idea is to use one column for each data element you will have, and use one row for each plant. It is easy to do even if you have not used a spreadsheet before, since there are no formulas to contend with; you are only using the spreadsheet for its ability to organize, sort, print, and maybe export your text.

The first step is to decide what data you would like to keep for your plants. Start by thinking about the lists you would like to have, such as lists sorted by name, hybrid group, bed, color, age, source, etc. Then think about what you want to know about each plant. Taken together, those decisions determine the data elements you will need. Next, think about the conventions and possible entries you will use for each of the data elements. This is a crucial step because these conventions let you search for a plant based on the data you have entered for it, and increase the usefulness of sorts by those data elements. For some ideas, look at the data entry mockup for an azalea database, at http://www.azaleas.org/azenter.html, which shows many data elements and their standard entries.

Some other ideas to consider for the data elements are:

- A unique identifier, useful when you have more than one plant with the same name: A standard approach used by many public gardens is the last two digits of the year in which you got the plant, followed by a unique three- or four-digit sequence number within each year. It can be useful to separate those two numbers with a single letter for the type of plant, such as a=azalea, c=conifer, d=deciduous azalea, g=grass, m=maple, p=perennial, r=rhododendron, t=tree, v=vine, w=wildflower. That yields an identifier such as "95a023", which identifies the 23rd plant you acquired in 1995, which is an azalea.
- Name, either with separate columns for genus and species and cultivar, e.g., |Rhododendron | austrinum | 'Don's Variegated'|, or one column for the combined genus and species and cultivar, maybe with the genus abbreviated to a single letter, e.g., |R. 'Amy'| (having one column is easier to deal with, but your approach will depend on how you want to sort your plant data)
- Common name and/or hybrid group, e.g., "Dodd evergreen"
- Source (where you got the plant, e.g., "ASA 04 convention"
- Cost (how much you paid for the plant)
- Type (what you acquired, such as "cutting" or "seed" or "1 gallon")

- Date (when you acquired the plant, maybe in yymmdd format so you can sort by it, e.g., 050423 for the 23rd of April, 2005)
- Bloom time: either the time of first bloom or time of peak bloom (pick one and stick with it), coded as, e.g., 5M (5=May + E/M /L for early/mid/late) or, e.g., 1Apr (1=week 1/2/3/4 + 3 letters of the month), or the actual date, maybe in yymmdd format so you can sort by it
- Garden color (what the flower looks like, from, say, 10 feet away)
- Bloom color (what the flower looks like from 1 foot away)
  - Base color
  - Blotch color
  - Variation(s) shape, color, amount
- Bloom size (width across the face of the bloom, or slant length of the bloom from tip (distal end) of the pedicel to edge of the petals, or both)
- Bloom shape, such as "double hose-in-hose"
- Leaf color
- Leaf size
- Plant habit, such as open or dense, upright, or mounded
- Plant size (ideally, the size history): using a plant number with the year you got it gives you a rough idea of how fast the plant has grown between when you got it and now; an approach for keeping this in greater detail is to show the year and the height x width, with the most recent year first, e.g., 2005-5x2.5, 2004-4x2, 2001-1x0.25
- Plant location in the garden (see below)
- Growing conditions (either the actual conditions you have given the plant, or the conditions desired by the plant, or both), such as
  - Soil type
  - Amount of sun
  - Amount of water
  - USDA cold zone
- Notes: free form text , e.g., "chlorotic", "move this fall", "may be 'Cinderella' instead", "0-46-0 spring 2004"

You will find that some data elements seem like a good idea, but aren't very useful in practice, and simply aren't worth the effort to enter. That's fine-either just don't enter that data or delete its column. You will also find some other data element you didn't think would be useful is very desirable and worth your effort to enter. That's fine too-just add a new column for it.

It is easy, but tedious, to enter all the data for all your plants. Once that's done, you can sort by any of the columns to show, for example:

- All your plants sorted by name (sort by name)
- All the plants in each of the beds (sort by bed and by name)
- All the plants that bloom in May (sort by bloom time and by name)
- All the plants with red blooms (sort by garden color and by name)
- All the plants of a given type (sort by type and by name)

You can then print all or parts of your spreadsheet to take into the garden with you for note taking and updating. An approach that has worked well for me is to print a report of the plants in each bed, one or two pages per bed.

Garden Maps

It is a lot of work to draw an accurate map of your garden, and to accurately locate your plants on that map. On the other hand, some sort of mapping is the only way to completely solve the "lost label" problem, and having x,y coordinates with the name is a good way to find a plant. An easier alternative to mapping is locating your plants by their distance from a known point. Here's the way I'm doing it in our garden:

- I name the beds (as defined by paths or natural barriers), using an up-to-4-character abbreviation, e.g., "agln" for "above the glen"-short is good, for space considerations on reports and on a personal digital assistant (PDA) as described below, and I like acronyms.
- Next, I put a stake in each bed at some convenient point next to the path and lay a 100' tape along the path around the bed, going clockwise from the stake.
- Then I note the location of a plant as its distance clockwise around the bed from the stake to that spot on the path at a right angle to the plant, and, using a separate tape, its distance from the path into the bed to the plant. That yields a location such as "agln 16.7", which locates a plant in bed "agln" that is 16' clockwise along the path from the "agln" stake and then 7' into the bed.
- After documenting the plant measurements, you can instead measure the offsets from a nearby previously measured plant to get the distances for a new plant. For example, a plant that is 3' further from the stake and 5' further from the path than "agln 16.7" would be "agln 19.12".

I had a special case, which was a long and narrow nursery bed. To make it easier to locate all the tightly packed little plants using the "clockwise and in" convention, first I put in a grid of stakes every 4'. The corner stake was labeled "0.0" The other stakes are labeled "0.4", "0.8" and etc. along one edge, and "4.0", "8.0" . . . "32.0" along the other edge, with interior stakes labeled appropriately, such as "4.4", "8.20" and etc. Then it was easy to measure the plants by their offsets from the nearest stake, and it's easy to find them again the same way.

Fake beds can be useful too. I use "dead", "find" (I know I have it but I don't know where), "tbp" ("to be planted" plants in pots), "repl" ("replace" = it died, and I want another one), "gift" (given to someone), and "prop" (being propagated).

Garden in Your Pocket

Another approach I have tried, and like, is to export a few

selected columns of the data into a hand-held PDA, to keep all the garden data in my pocket in a very useful form. The data I keep on my Sony Clie PEG-SJ20 PDA are:

- Bed name
- Plant number
- Bloom time
- Plant size
- Plant name
- Bed location
- Color
- Notes

I upload this from my computer and import it as standard (i.e., no programming required) "memos" on the Sony PDA, which is about the same as "notes" on a Palm PDA. I separate the data elements with commas to help with the upload/download. That is one of the standard ways to export data from a spreadsheet—it's called CSV format, for "comma separated values." After importing the data to the PDA, it appears as a scrollable list of all the plants, sorted by bed name and by plant name within each bed. There isn't much display space, so each entry in the list only shows the bed name, usually most or all of the plant name, and none, part or all of the number depending on how long the plant name is. Tapping an entry then shows all the information for that plant and lets you edit it. The PDA built-in "find" function searches on any text in any field and lists all the matches very quickly.

Having the name and location data lets me find any plant in the garden without relying on my memory: I just search on the name or number and tap on the appropriate result to see all the information for that plant, including its bed name and location (see Figure 2). Knowing that if I take big steps I have a 3' stride, and knowing where the bed stakes are, makes short work of finding that plant. That same search by name augments my memory at a plant sale and avoids my buying duplicate plants by mistake.

Having the plant location lets me make a new label for a plant with a missing label. I use Oats AlumaBoss labels, which are soft aluminum you emboss by writing on it with a pencil or ballpoint pen. I put the name on one side, and the number on the other side, with space left over for bloom color, bloom time, etc. I buy the labels without wires, and instead use 9" lengths of scrap insulated telephone wire, the finer the wire the better. A nice touch I was taught by Malcolm Clark is to always put the label on the north side. North isn't important, but having one standard location (rather than the most convenient—and different—location for each plant) is very important in reducing the time spent finding a label. I put a loose wire loop around two branches at a three- or four-branch fork near the end of a stem about waist high, and gently crimp the loop closed to help keep it where I put it. I think using fine wire will let it open up as the branches grow to avoid any girdling. Another idea I've learned but have not done, is to make a duplicate label with a much longer wire, put the wire on the ground around the plant, mulch over it, and forget about it. When the visible label on the plant is gone, you can feel around in the mulch to find the wire and thus the label, and duplicate its information onto another visible label.

Figure 2 (above). Example "garden in your pocket"-a list of plants, in this case, in the "above the glen" bed. *(Photo by Bob Stelloh)*

Figure 3 (below). Full details for the 'Macrantha Purple' entry shown in Figure 2. *(Photo by Bob Stelloh)*

Having the location, bloom time, color, and size data lets me enter or change that data in the PDA when I'm in the garden looking at the plant, and then download it to the computer later. It might be easier to jot down some notes on a piece of paper, and use those notes to update your spreadsheet. Just remember-keeping track of your plants isn't nearly as important as caring for their needs.

***Bob Stelloh,** our treasurer, is an avid azalea enthusiast and former software engineer. He is currently very involved with the azaleas e-mail list and the ASA Web site, and with finding and documenting native stands of* Rhododendron vaseyi. *He is also thinking about rewriting gim jr to run on a PC as well as a Macintosh, using the fine new PC awarded to him at the 2005 ASA convention as the test bed.*

New Members

The following new members have joined the Society as of October 14, 2005

At-Large

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