Comparison of four societies' seed exchanges January 2020 M.Gastil-Buhl

Introduction

The PBS board will soon discuss the future of our BX. I recently analyzed data from the past 7 years of the PBS BX and observed some patterns. As this happens to be the season for seed exchanges in other societies, and given my overly curious nature, I decided to explore. I joined (re-joined) SRGC, NARGS and SIGNA to gain access to their current seed lists. I could have used historic data but I wanted to experience their ordering processes first hand.

Before I started, I had few preconceived notions. I wondered if there would be many bulb species offered that had not been offered by PBS. I did not expect their ordering software would be as easy to use as buying plants from Annie's Annuals, with wish lists, alerts of availability, copious advice for culture and trivially easy checkout. And, having recently spent a lot of time spelling taxonomy, I expected deprecated names and misspellings galore. What I found was not what I expected.

This report follows an earlier report which analyzed the PBS BX by itself. Those results are not repeated here.

Quantitative Data

For this analysis I loaded each current seed list into a relational database for analysis. These results have taxonomic name resolution applied only to the PBS taxa. Given how many of the PBS taxa converged from how they were initially listed, I expect numbers in Table 1 of unique taxa to decrease and in Table 2 the overlap to increase. At a glance, the NARGS list appears to already be corrected, at least for the taxa familiar to me. The SIGNA list includes at least one miss-spelling among species outside the genus Iris. Taxonomic spelling is a whole other topic, fraught with its own complexities. Here, non-PBS listings are "as listed".

The tables below list the number of donors, number of items offered, number of unique species (or variety) and how much those overlapped with PBS offerings. I list the 2019 offerings from PBS and also the last 7 years to show how it scales up to similar numbers to the big exchanges. The other exchanges are shown here only for their current list, the 2019-2020 exchange.

Table 1: Counts

	PBS 2019	**PBS BX 300 thru BX 463**	**NARGS**	**SIGNA**	**SRGC**
Exchanges	12 BX + 1 SX	164 BX + 8 SX	1	1	1
Donors	43	156	188	12	"300 or 400"
Items	446 (297 as seed)	3841	2535	154	4161
Unique Taxa	353	1710*	2230	125	4087
Genera**	104	302	655	10	786 (190 bulb)

*After taxonomic resolution 1710, versus 1851 taxa as-listed.

**First-words of binomials, excluding obvious not-genera. An approximation.

Table 2: Overlap, how many donors and taxa the societies have in common with PBS BX donors and taxa

	PBS 2019	PBS BX 300 thru BX 463	NARGS	SIGNA	SRGC
Donors	27% (43 of 157)	100% (157 of 157)	7% (11 of 157)	1% (2 of 157)	Not available
Taxa	21% (355 of 1710)	100% (1710 of 1710)	7% (153 of 2230)	Not analyzed	53% (2140 of 4087)
Genera	36% (108 of 302)	100% (302 of 302)	17% (111 of 655)	Looks like 100%	17% (132 of 786)
Wiki Taxa (Species whose genus is in the wiki)	Not analyzed	48% (816 of 1710)	30% (637 of 2230)	100% (125 of 125)	58% (2378 of 4087) 171 genera match

Overlap between genera described in the PBS wiki and items of those genera offered in the SeedEx is a measure of how well geophytes are represented in other seed exchanges. The measure is approximate because not all geophyte species are in the PBS wiki (yet) and sometimes not all species within a genus are geophytes (i.e. Delphinium). Consider that only 48% of the unique taxa in PBS BX have their genus in the wiki.

An example of the remarkable overlap between other seed exchanges and the PBS wiki is that of the 190 genera with bulbs offered by SRGC, 171 of those genera are described in the wiki. Recently I requested permission to use a photo from Ian Young for Corydalis flexuosa and he and Maggie were cheerfully obliging. When I looked up how to reference him, I saw extensive use of his photos in the wiki. Possibly the SRGC SeedEx is heavy on bulb species because of the Bulb Log. SRGC does not offer a donor list.

Table 2 is complicated. The overlap of donors is simple: how many PBS BX donors also donated to the other societies this year. Taxa (usually species but also varieties, hybrids, etc) overlap is how many unique taxa were offered in other exchanges that have been offered in any BX since 2011. Overlap of genera reduces the taxa to unique genus names, so this collapses the numbers and makes matches possible of two separate species within a genus. Overlap is still with the BX here. Overlap of Wiki Taxa does not compare BX data, but rather, the list of taxa and genera described in the PBS wiki. For example, only 48% of the taxa in our BX since 2011 are in our wiki. More SRGC taxa are in our own wiki than PBS BX taxa.

In Table 2 I show the numbers used to calculate the percentages because not just the relative amounts, but the actual amounts are significant. Notice that in 2019 more geophyte species were offered in NARGS and SRGC than were offered by PBS. That may be outweighed by those seeds arriving in the wrong season.

Opportunity for exchange between societies

I noticed in BX 307 that SIGNA donated 17 seed items. Would PBS benefit from an arrangement with these other exchanges where we send our surplus and receive theirs? The timing does not work well for the winter growers and would require either very late sowing or seed storage, neither ideal. And this is of course a unique and significant benefit the PBS BX offers, the late-summer to autumn arrival of winter-growing seeds. A society in the southern hemisphere could exchange of surplus seed with good seasonal timing. I did not explore that. I may look at IBSA if they can deal with import to the US.

Implicit in this discussion is that we are only concerned with the bulb species (in the general sense.) Growing bulbs from seed requires different horticultural methods possibly unfamiliar to other societies. But my impression is that new members join to educate themselves and seek to diversify their collection, so learning how to grow bulbs from seed may not be an impediment. I do not suggest that PBS expand its scope beyond geophytes.

Seed Exchange Ordering Systems

I participated in the SRGC, SIGNA and NARGS seed exchanges this January 2020 for the purpose of having first hand experience. I did this in a realistic way, selecting species I have a good chance of growing locally and/or species I hope to add to the PBS wiki or grow for future PBS BXs. I had the advantage of my own wish list already being loaded into my relational database. I do not expect that to be part of the usual participant experience so I will omit that from this discussion other than to note that there were very few matches. It did remind me, however, of the Annie's Annuals feature where each user can maintain their own wish list online and be alerted of availability. None of the seed exchanges offer that.

I noticed that an alternative ordering mechanism with printed catalog and paper mailed request was offered. I did not participate in that way. Although I appreciate that benefit to the gardener without a computer, I do not consider that a good fit for PBS due to the slow turnaround.

People rather than Software
PBS is the only seed exchange here where ordering is *ad hoc*, uncontrolled. We see the replies to the mail list rather than direct to the BX director, and in those messages sometimes the request itself does not follow instructions. We're small, we're friendly ("pacific"), and our directors have been accommodating. Perhaps given the small volume of people and species, this could continue. There is benefit in this low-tech, unconstrained system: less for new users to learn. There is nothing to exclude non-technical volunteers from helping, and no software to become obsolete or need upgrades.

SeedEx Software
A constrained system offers benefits:

- Taxa can be referenced.
- Lists can be accessed like a spreadsheet so users can sort by categories and join to other lists.
- Orders can be filled systematically, such as:
    - Membership status
    - Payment
    - Ranking of 1st choices versus substitutions
    - Record of order with species spelled out for labeling later

That last benefit listed, the copy of one's order with species written out, is not just convenient for the recipient, but also for future exchange, as the labels are more likely to be correct and future donations correctly named. I did not realize how nice this could be until PBS BX 463 when the packets arrived with their names, not just numbers.

The seed ordering systems look easier to use for people like me who handle data routinely and are familiar with data tools. Even so, it took hours longer than any PBS BX decisions, mostly due to the overwhelming inventory offered. I enjoyed the process, but I imagine some people are not able to follow the directions and succeed with their orders on their own.

Of SRGC, SIGNA and NARGS, each has nice features. SIGNA was the most simple to use, with radio buttons beside the species name. NARGS was the most complete with information and navigation. I appreciated when the lists were offered in spreadsheet format for download, not just for my analysis, but because that made my selections more efficient, being able to sort and search by multiple criteria. I appreciated that I could begin my selections in one browser session and have it still there as I left it, accessed from another computer another day.

I know nothing about the software which runs those societies' seed exchanges. I am curious, and may ask in future. But I wanted first to experience the process normally without such knowledge. I have no way of knowing how easy or difficult it is for the seed exchange directors to use the system from their end. Clearly there are costs, at minimum of volunteer time and possibly a paid service as well. The SRGC and NARGS exchanges were an order of magnitude larger than a typical PBS BX. Possibly the cost of a software system only returns on investment with larger volume.

Two of the systems offered a google search link composed with the taxon. Although I prefer to do my own research, I tested how well that auto-linking worked. When a geophyte, **usually the top link pointed to the PBS wiki**, unsurprisingly. But the google search also showed previews of other references and of those I found the USDA zones useful. Since I only try to grow species expected to thrive in zone 9b thru 10a, I look for that data. I realized we do not often mention zones on the PBS wiki. Of the 1710 taxa in PBS BX 300 through BX 463, 816 of these are in the wiki. Of the 302 genera, 206 are in the wiki. A future system might offer automatically linking to that species or at least that genus on the wiki where possible.

Provenance and description data

Especially for wild collected, but also useful for garden grown seed, knowing where it grew and even who grew it adds value. On the PBS mail list this information is occasionally shared in detail, but not systematically recorded in spreadsheet format. When I processed the BX data I did load the comments as well as item, taxon and donor because there was a lot of valuable data there. I do not know what proportion of our PBS members value provenance and other descriptive data. For me it adds so much value that I base selections on that. It is the difference between a garden and a curated collection. Some BX items' comments included growing season, open versus controlled pollination, and wild versus garden grown. I would suggest offering a way to tag those parameters in a future system.

SRGC combines donations of the same species from all donors whereas SIGNA offers the same species separately from each donor like PBS does. I prefer to know the origin of my seed.

Pricing

The dollar costs are insignificant in comparison to the effort of volunteer time to donate seed and run the exchange. Even the time investment to research what to order overshadows the nominal charges to request seed. These are all non-profit organizations. I am surprised to see in the PBS Treasurers Reports in the newsletter how much income PBS receives from the BX given the small per-packet price.

Each exchange has their own price structure so comparison is not always direct. The below numbers are likely not representative of the usual NARGS or SRGC member since I was only interested in bulb seeds. For example, my own expenses were highest with PBS merely because PBS offered more species I wanted. These numbers are probably not useful from a BX director's point of view, as these are from the perspective of the member, not the society.

Table 3. Fees

	PBS	PBS 2019*	NARGS	SIGNA	SRGC
Per seed packet	2	20x2=40	NA	1	NA
Postage etc	6	3x6=18	NA	4	NA
Flat fee	NA	NA	17	NA	6.80 (5GBP)
Annual Dues	20	20	40	17	34.07 (25GBP)

*Example of 3 BXs totaling 20 seed items. My own 2019, not necessarily representative.
Amounts in US dollars unless otherwise noted.
Dues include paper-mail copy of publications, one person, in USA.

Summary

PBS is different in important ways:

- Not just seeds. Bulbs (corms, rhizomes, tubers, etc) and spontaneous-sprouting seeds have different needs. SRGC does offer some live material, but not to the U.S.
- Timely. More than once a month. Allows for fresh material and seasonally appropriate sowing. Our biggest difference, timeliness, is also our biggest asset for a bulb exchange.
- Rapid. The others' annual exchanges are open for at least a month whereas ours used to close within the day, now extended to 3 days. Necessary for bulbs. I do not recall if the SX (seed only) were open longer.
- Small volumes (because split into more BXs.)
- Low tech, *ad hoc*, ordering process run by humans not computers. (Whether or not a plus or minus, it is a difference.)
- Transparency. Our BX lists are public when announced whereas others restrict access to members until after the current exchange closes.
- Just geophytes. (Similar to SIGNA)

Similarities:

- International participation, including North and South Hemispheres.
- Non-profit, volunteer driven.
- Eclectic membership, from gardeners to horticulturalists, even Botanic Garden directors.
- Long-term, established organizations which have persisted despite technology change and aging membership in the era of social media.
- Have a Forum or mail list component.
- Have a printed newsletter.
- Offer a significant number of geophyte species.

All three other seed exchange systems I tried were satisfactory but my favorite is that of NARGS due to its descriptive data such as provenance, organization, and ease of use.

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Disclaimers

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