

Hosta Horizons

newsletter of the
Russ O'Harra Hosta Society
est. 1993 www.rohs.org

April 2011

ROHS Top Ten Mini Hostas

1. H. 'Blue Mouse Ears'
2. H. 'Pandora's Box'
3. H. 'Daisy Doolittle'
4. H. 'Little Jay'
5. H. 'Silver Threads and Golden Needles'
6. H. 'Cameo'
7. H. 'Stiletto'
8. H. 'Little Maddie'
9. H. 'Blue Mouse Ears' streaked
10. H. 'Lakeside Elfin Fire'

President's Message:

"Gardening Grows the Spirit"

A January snow storm has just left our neighborhood bundled up in 8" of pristine whiteness. It is so beautiful outdoors, but so cold. I hate those howling winds! Last evening I noticed it was after 5:00 PM and still light outdoors. The days are getting longer already, and this afternoon the sun is shining. I always feel better when the sun is shining.

How many of us made New Year Resolutions? I didn't even bother thus I can't disappoint myself. However, I have given thought to what goals we might set for the Russ O'Harra Hosta Society to accomplish in the next 2 years. I feel as the new 'leader of the pack', a course of direction needs established. I hope we will concentrate on supporting hostas and shade gardens throughout our area.

(continued on page 4)

Hosta Horizons

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In This Edition:

2010 Performance by a Hosta –

Best//Worst – p. 14

2010 Garden Experiences – p. 13 & 14

2011 Dates to Remember – p. 16

2011 Winter Scientific Meeting:

Bob Solberg – p. 18-23

Kevin Walek – p. 24-28

Ron Livingston – p. 29-33

Adopt-A-Trail on the Tall-grass Prairie – p. 3

Auction Results:

2011 AHS Online Auction – p. 5

2011 First Look Auction – p. 16

Don Dean's Hosta 6-Pack – p. 14

Gardening Grows the Spirit – p. 1 & 4

Helen Groeneveld – p. 11

Hosta Travels With Renaldo:

Winter Scientific Meeting – p. 6, 7, & 11

Ken Harris – p. 3

Membership Renewal – p. 11

Minutes of the 2010 Fall Meeting – p. 15

ROHS Top Ten Mini Hostas – p. 1

ROHS Friends:

Rick and Teresa Innis – p. 10

ROHS Top 25 Favorite Hostas – p. 16

ROHS Website Updated – p. 15

Russ O'Harra 'Pocket' Garden – p. 5

Spring Meeting – p. 3

Summer Tour & Auction – p. 5

The 12 Sports of Christmas (Answers) – p. 16

The Hosta Makers: Don Dean – p. 8, 9, & 12

The Way You Do The Things You Do:

Don Dean – p. 17, 23, 28, & 33

Top Ten Reasons Gardening Is Fun – p. 14

Our first meeting of the year will be held on Sunday, April 17th at the Neal Smith National Wildlife Refuge in their Prairie Learning Center located near Prairie City. (See directions and map.)

The building will open at Noon followed by a potluck lunch at 1:00 PM. There is a dining area, but no kitchen. A small microwave will be provided. After lunch, Ken Harris will speak on garden photography. The business meeting will follow the speaker's presentation.

Ken Harris lives outside of Chicago, IL on 1.3 acres of wooded land that is home to Whamadiddle Garden and over 1500 different cultivars of hostas. Whamadiddle is a slang name for a hammered dulcimer which is another hobby interest. Golf occupies most other warm weather spare time. His real job is in residential architecture as you have to have one of those to support these hobbies.

Ken is a member of the Northern Illinois, Midwest and American Hosta Societies as well as Photo Editor for the AHS website and the Online Hosta Journal.

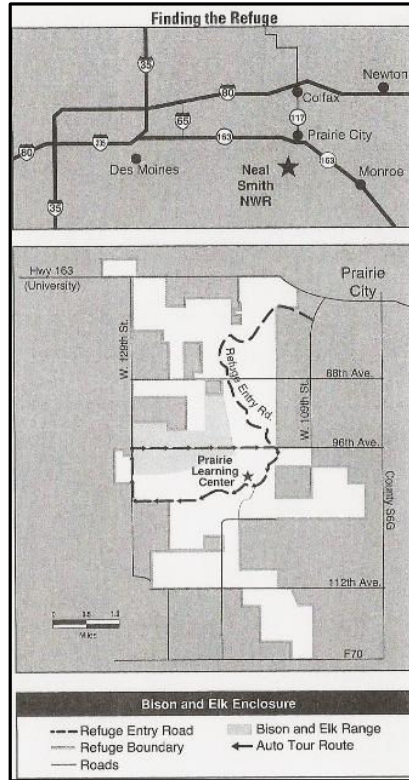
Ken has given many seminars on garden photography throughout



the Midwest this year and was one of the breakout speakers at the 2011

Winter Scientific Meeting in Chicago. Ken is a member of the Fox River Camera Club and the West Suburban Chicago Flickers.

ROHS Spring Meeting



Directions

Just 25 minutes east of Des Moines, Neal Smith NWR is 9 miles south of Interstate 80.

If traveling from downtown Des Moines, take Hwy 163 to exit 18, follow the signs along the new paved 4.5-mile entrance road.

If traveling on Interstate 80, take the Colfax/Prairie City exit. Turn south onto Hwy 117 and travel 7 miles to Prairie City. Continue through Prairie City across the Hwy 163 bridge to the refuge entry road.

Adopt-A-Trail on the Tall-grass Prairie

Are you interested in helping to reconstruct a part of Iowa's natural history? If so, check out the Adopt-A-Trail program at Neal Smith National Wildlife Refuge!

The goal of the Adopt-A-Trail program is to improve the quality of the prairie plantings along our primary hiking trails for the enjoyment of our visitors and the continued enhancement of the prairie. This is an opportunity for any group of at least 3 people to help reconstruct and maintain our native tall-grass prairie. You would become the caretaker for a 50x25 foot plot of reconstructed prairie adjacent to the Overlook Trail. Responsibilities include: spreading seeds and planting seedlings of native plants in May; watering as necessary; removing invasive species throughout the growing season (May-September); a commitment to tending the plot at least 3 times per month during these months. You may work any day, anytime from sunrise to sunset.

Training, equipment and plants are provided by Refuge staff or our many experienced volunteers. A spring orientation and kick-off will begin the training process, and staff is always available to help or answer questions.

Participants can be any age and need no prior knowledge about the prairie. The whole group need not be present each time so divide it up as it fits into everyone's busy summer schedules.

For more information contact Megan Wandag at 515-994-3400 or at megan_wandag@fws.gov.

“Gardening Grows the Spirit”

(continued from page 1)

The past couple of years our group has been very focused on the 2010 Midwest Regional Hosta Convention. That project took up nearly all our energy. I am so glad we will not be hosting a convention during my time as president. Barry Laws deserves a big ‘High 5’ for the four years of dedication and leadership he gave to all of us. All of our past society officers have served to the benefit of our organization. Thank you to all. You folks are the best!

Looking forward, a couple of project ideas have already been brought to me by ROHS members. Both involve improving existing public gardens in Des Moines.

Eve Vanden Broek, ROHS Vice-President, works in downtown Des Moines. She has found a ‘hidden’ shade garden in the downtown area that she feels could really benefit from our help. I will be asking her to present her plan of action at our spring club meeting for our member’s input.

David Dettman and I have been talking about an all O’Harra public hosta garden for a couple years now. Mel Visser, a founding member of the ROHS, let me know he not only has had the same concept, but has been hard at work designing an O’Harra Hosta Garden to be established at the Des Moines Botanical Center. He and Carol volunteer many hours there. The project is on hold for now with improvement changes scheduled to happen at the Botanical Center. It seems only appropriate that the ROHS get behind this project and support Mel’s efforts when it’s a ‘go’. He has nearly all of Russ’s introductions in line for the project. He has asked for help finding H. ‘Pearl Buttons’, H. ‘Claire deLune’, H. ‘Green Lantern’, H. ‘Spit Shine’, and H. ‘Elizabeth Levy’. If you have these plants or know someone who does, please let us know. I am aware that in the past there were problems working with the Botanical Center. However, the entire ownership and management team has changed since that time. Hopefully our two organizations can enter into a renewed friendship.

If you have a pet project that is appropriate for our organization to support, please bring it to our attention. Presently the ROHS is financially blessed due to successful fundraising efforts over the past several years. Our past leaders have been frugal while supporting many gardening projects at the Iowa Arboretum and other smaller public gardens.

Our spring meeting place is new to us. We will be gathering on Sunday, April 17, 2011 at Noon with a potluck dinner at 1:00 PM at the Prairie Learning Center of the Neal Smith National Wildlife Center near Prairie City. There is no rental fee, but a donation would be welcomed.

Our summer garden tour will be in the Marshalltown area on July 17th. Eve Vanden Broek will be working with the gardeners as liaison much as she did for the 2010 Midwest Convention. Thank you to those Marshalltown folks who stepped up to host our summer event!

Mel Visser has volunteered to steer our fall meeting. Details will be forthcoming later in the year. Eve and Mel will welcome help with these meeting arrangements. Contact us if you want to help out. That pretty much takes care of our year 2011. If you would like to volunteer to set up a future meeting or the 2012 summer tour, please let us know.

Our newsletter has a whole new look. Reldon is enjoying his work. Hopefully, increased communication and information will meld our club together. Please bring ideas, thoughts, and complaints forward. I would ask though, if you bring a concern, please also bring a possible solution. I hope to see you at our spring meeting. Invite a friend!

“Hosta is the Friendship Plant”

MM

Marlys Anderson

January 12, 2011

Russ O'Harra 'Pocket' Garden

By Eve Vanden Broek

In July 2004, I started a new job in Des Moines and as a new employee was given a parking space four blocks away. Each morning as I would make my way down the hill towards Grand Avenue, I would pass a small hosta garden dedicated to Russ O'Harra on Principal's property. I recognized the O'Harra name, but I had no idea why such a garden would be tucked away on the corner of 7th Street and Watson Powell Jr. Way. That September when I joined a RideShare vanpool, my route no longer took me past this small garden and overnight it became out-of-sight and out-of-mind.

Fast-forward to fall 2010. I found myself taking on the role of Vice-President of the Russ O'Harra Hosta Society, and the



small hosta garden made its way back to the forefront of my mind. A quick two block walk on a sunny afternoon in September yielded a sad sight. The hosta had clearly seen their better days and this once charming garden was in a state of decline. Not wanting to see it decline further, I will propose at our spring meeting that

our club revive this garden with Russ's hosta, sprinkle it with mulch and perhaps top it off with a piece of garden art.

So how did this garden come to be, you ask? I, too, had been wondering that and thus went directly to the person who I knew would know the answer - Roseanne O'Harra. We had a lovely conversation. During our talk I learned that Roseanne had worked for Principal for many years as a contract analyst, a contract writer, and a liaison between the compliance and law departments. Her entire career at Principal, in fact, was spent in the building on 7th Street where the garden is located. She retired at age 70 and commented that she'd still like to be working. Following the death of her husband, it was Roseanne's colleagues who suggested a hosta garden in the empty space outside the 7th Street door. The space features a central shade tree, a few hosta and a plaque dedicating the garden to Russ citing the last two lines of Shakespeare's Sonnet XVIII:

*"So long as men can breathe or eyes can see,
so long lives this and this gives life to thee."*

When I mentioned the idea to bring more life to the garden to Roseanne and her daughter, Joan, both were very excited and stated they would wholeheartedly support the project in any way. Roseanne asked me to send the group her love and to let you know that she is grateful for the club's efforts to keep Russ's passion alive and thriving. So, as every writer starts with a blank page, every painter with a blank canvas, so shall we recreate a bit of beauty with a small garden plot in memory of this club's namesake, Russ O'Harra... with the club's approval, of course.

AHS Online Auction Results

The AHS auction in January generated \$10,306.64 and featured 77 hosta offerings (several with multiple hostas), and 13 other items including hosta seed, companion plants, garden markers, a cash donation, and a new book on hybridizing. The top three (3) money makers were H. 'Bob Axmear' (\$750), a Bob Kuk streaked breeder (\$600), and H. 'Brant Rock Jetty' (\$550).

<http://www.americanhostasociety.org/11onlineBigBidPlants.html>

Summer Tour and Auction

It's official!

The summer tour will take place on **Sunday, July 17** and will feature four unique gardens in the Marshalltown area:

Don and Mary Ann Lovell

Dean and Helen Groeneveld

Teresa Vokoun and Ed Siems

Dave and Shirley Halverson

Lunch and plant auction will take place at the home of Dave and Shirley Halverson. They have a wonderful hilltop location with plenty of room and great gardens to explore. Look for a route map, garden descriptions, and additional tour details - including an added incentive to participate in the summer tour - in the summer edition of Hosta Horizons. Details will also be posted on the website at www.rohs.org. Remember to mark your calendar today!

Hosta Travels With Renaldo: WSM



On a bitterly cold, snowy Friday morning in January, I travelled east with Bruce and Trudy Van Wyk to the Winter Scientific Meeting in Lisle, IL. Our friend, Ken Harris, had announced on Facebook before we departed that we would be greeted by sub-zero temperatures and wind chill in Chicagoland. We arrived at the hotel at the same time as Ken and Joanna Kovalscik, an internet forum friend from Michigan, who was attending for the first time. After checking into the hotel and receiving registration materials, we spent the early evening in the hotel lobby catching up with hosta friends not seen since last summer. When the conversations turned to food, our group decided on a Brazilian steakhouse. It was an excellent choice, and an experience the twelve of us won't forget. After dinner, we enjoyed the camaraderie in the hostality suite highlighted by a hilarious discussion on the appropriateness of referring to hosta seedlings as 'babies'.



Winter Scientific got underway Saturday morning with Bob Solberg's talk, 'Hosta Ploidy - What It Really Means to Hosta Growers'. Noting that most in attendance had been out of high school for a number of years, and the huge advancement in DNA and genetic research in the last 30 to 40 years - especially in the last 10 years, Bob said, "*What we learned is still true. There's just a whole lot more to know*".

Hostas are naturally diploid with two (2) sets of 30 chromosomes – 60 total. Tetraploid hostas have four (4) sets and 120 chromosomes. (Hosta 'Sum and Substance' and its sports are naturally triploid.) When plants are propagated commercially, two (2) key things happen differently than in nature: they are grown in pots, and they are produced by tissue culture. Growers use herbicides to control weeds in pots which can alter the way cells naturally divide creating tetraploid hostas. Auxins used in the tissue culture process can also affect cell division in the tiny plants resulting in a change of ploidy.

A mature tetraploid hosta is smaller with shorter petioles making the plant more compact, and the leaves more dense. The leaves may not be as flat and can exhibit cupping or doming. The substance of a tetraploid plant is greater so it may be more slug resistant. The bloom scape is shorter and thicker with flowers closer together creating a more attractive display. The flowers are larger (generally wider than longer), and the tubes, flower parts, and pollen are bigger, but the seed pods are shorter and fatter. Tetraploids have shorter roots and a slower growth rate. Variegated tets usually have wider margins and narrower centers than their parent plants. "*Just because a plant is a tetraploid doesn't mean it's a better plant. It's a thicker plant, but not necessarily a better plant.*"



Past AHS President, Kevin Walek, became International Registrar for the Genus Hosta when his term as president ended. In May 2010, he also became registrar for the American Hemerocallis Society. He is the only registrar in the world other than the Royal Horticultural Society that handles more than one species. Between hostas and daylilies he processes nearly 2700 registrations a year. 296 hostas were registered in 2010 bringing the number of registered hostas to 4810. Hostas remain Kevin's first love, and he hoped to demystify the registration process and make it clear why hostas need to be registered with his presentation, 'The Hosta Registrar: What's Behind the Curtain'.

The registrar deals only with cultivars. After registration papers are returned to him, the registrar records the names, the data about the plant, and creates an accessible archival database. Currently a plant name has to be published in hard copy to be considered official. Mr. Walek is trying to get publication in the online Hosta Registrar database to be considered the same as publication in print.

"I do not have the authority to judge traits or qualities or whether or not something should be a registration." Cultivar names cannot exaggerate the qualities of a plant, be confused with an existing name, or be objectionable. He acknowledged that most complaints about the hosta registrar's website

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are due to incorrect mature plant sizes. *“At one time it was the registrar’s opinion - not this one - that you register the SIZE of the plant at the time you registered it. I can’t change it until you die, but YOU can change it while you’re living.”* Kevin offered many good suggestions for future registrations. *“What I want is the most complete registrations possible.”*



Michigan hybridizer, Ron Livingston, was one of three (3) speakers giving talks in both morning and afternoon breakout sessions. In his intriguingly titled talk, ‘Are Our Hostas Going to the Dogs?’, Ron told that his love of dogs began when the family dog saved himself and his family from a house fire when he was a boy. *“If you look at where dogs have gone in the last 15,000 years you can get an idea of where hostas can go in the future. I’m trying to make a point here that the possibilities of diversity are beyond the imagination. Hopefully hostas CAN go the way of the dog. According to George Schmid there are 40 species of hostas, and yet one species made all of those different dogs. What can be done with dogs can be done on a much larger scale, because we have so much more to work with.”*

Ron’s unique perspective on hybridizing developed as he thought about people that he found the most attractive. They had *“a mysterious attractiveness. They were multi-racial and (had) multi-national backgrounds. They had that special something. And I asked myself ‘What would an Italian Eskimo look like?’ When I do my crosses I think about that.”* The cross of H. ‘Ginko Craig’ x H. ‘Chartreuse Wiggles’ that created H. ‘Atom Smasher’, Ron considers to be his first ‘Italian Eskimo’.

Russian scientists working with silver foxes discovered that breeding for non-aggression unlocked genes regulating physical appearance. *“We’ve been breeding hostas for a long time focusing on color, shape, size, variegation, but hostas aren’t aggressive so how do you breed for non-aggression? If they were aggressive, we wouldn’t have to worry about slugs. I started working with flowers. So it kind of makes sense that if you start working with complex hormones in the flowers that you might unlock some of those*

regulator genes. Pay attention to how they look, how many flowers on a scape, the direction they face, the patterns on the inside and the outside of the flowers, fragrance, the scape positioning, color possibilities, arrangement and placement of the pistil and stamens. I hope these will spark some ideas.”



After a buffet lunch, the second breakout session I attended was Dave Wanninger’s ‘What’s New with Hydrangeas? Lots!’ Dave is the chief horticulturist at wholesale Beaver Creek Nursery in southern Wisconsin. (Klehm’s Song Sparrow Farm is the retail sister company.) He is an entertaining and energetic speaker who never stops moving, and he offered his honest assessment of new hydrangeas on the market that he has had experience growing. He shared cultural advice on growing and maintaining cultivars of the different hydrangea species, and his thoughts on which new varieties coming to market would be garden worthy. Dave concluded his presentation with this witty truism: *“The more plants you kill, the better gardener you become.”*



The silent auctions for hosta seeds began before the first speaker and continued during breaks and lunch. New hosta introductions from Q & Z Nursery added live plants for the first time. Each round offered about 70 bidding items. The third and final silent auction concluded following the afternoon breakout session.



Glenn Herold is a Horticulture professor at Illinois Central College in Peoria, IL. His presentation ‘Major Minors: Utilizing Hardy Bulbs in the Garden’ offered a colorful and much needed reminder that spring is coming. The bulbs he recommended combine well with hosta (Allium, Martagon lilies) or bloom early and then their foliage is hidden as hostas unfurl (Chionodoxa, Crocus, Galanthus, Muscari, Pushkinia scilloides, Scilla sibirica). He dislikes using daffodils with hostas because the foliage is larger and remains too long before dying back. His bulb planting advice is to plant in masses that are randomly arranged. Audience participation during his talk included some good-natured heckling from AHS president, Tom Micheletti.

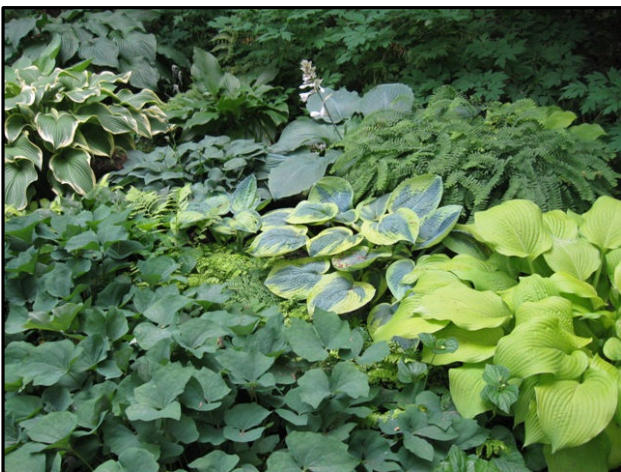
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The Hosta Makers:

Don Dean

Insights into the motivations and methods of hosta hybridizers. by Reldon Ramsey

Don Dean of Ramsey, MN began hybridizing hostas in 1991 after collecting hostas for several years. Like many of us, he wanted more hostas than his budget would allow him to buy so his first hybridizing experience was growing seeds from open pollinated plants. After reading hosta registrations, he discovered that many cultivars were the result of a single cross or listed with unknown parentage. He knew he could achieve similar results, or better, if he controlled the crosses. Using Herb Benedict's method, he removed flower scapes in 1992, limiting the number of pollen donors in his garden while still letting the bees do the work. But by 1993, he wanted more direct control, and he began making manual crosses.



A pleasing mix of colors and textures in Don's garden.

Don credits Ken Anderson and Betty Peterson with fostering his appreciation of hosta characteristics. Hideko Gowan and Herb Benedict shared

their hybridizing knowledge with him, and Steve Moldovan shared his passion for hybridizing. Don gleaned all the information he could from AHS presentations and publications.

Don's early hybridizing experiences involved in-line breeding along with out-crosses, and back-crosses as he learned what worked well for him.



Along the way he discovered some of the predict-able outcomes, but also that *"the 'predictable' nearly always has an exception or two with this plant"*.

Don Dean welcoming guests to his garden at the 2010 AHS Convention.

His hybridizing goals are distinction; improved qualities within a class: color, form, substance – *"all the standards"*; long-lasting blues; *"color into the flower scapes where they can be appreciated while standing rather than prone on the ground"*.

Don's method of achieving his goals evolved, and over a five year period starting in 1998, he created breeding stock by crossing species hostas into his lines *"to stir the pot"*. To a lesser degree, it remains an ongoing part of his program. Hybrids combining traits of four or five species (some from a direct two species cross) have been used both as pod and pollen parents. Now he can emphasize the qualities of one species with back-crosses over several years. Additional crosses may involve siblings and cousins, 'selfing', or out-crosses to different lines. (continued on next page)

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Current breeding lines include crossing late-blooming species with blues, and adding purple and red pigments to the blues. These plants have late season growth so they continue creating new wax and remain blue until the end of the season. Other lines feature variegation and gold hostas with colored scapes. Pie-crust-ed margins, serrated edges, and waviness are being worked into all lines.

Depending on the goal for a cross usually less than 10% of germinated seedlings make it to an individual cell pot. Generally less than ten plants per cross are kept and planted in the ground for further evaluation the first year. Determining factors are shape, form, color, texture, and growth rate. He keeps those that do not fit the norm of the cross, and a couple that fit the typical

expected look. *“Often you get the majority of seedlings that look quite similar except when both (parents) have a very funky, diverse lineage. Then they can be all over the place.”*

Seedlings under evaluation in the Dean garden.



After three or four years of evaluation, plants are culled and then culled again in another two or three years. Fertility and the goals of the cross determine which plants make the cut and vary from one cross to the next. Seedlings from a cross are planted in rows adjacent to other crosses

involving the same pod parent for easier evaluation of the traits it passes on to its offspring.

One very good cross resulted in ‘perhaps’ six seedlings with good qualities kept. One is now registered, another is still under consideration, and a third has been kept because of seed set and good pollen. Don says that it is *“the best blue of the group, but not blue enough for me... yet. Perhaps next generation???”*



H. ‘Frosted Dimples’ in Don’s garden.

Asked if he’s ever surprised by a seedling that shows unexpected traits, Don replied, *“Reaching a goal and seeing a prediction ‘work’ is rewarding, but the surprises are what keep the intrigue about hosta running high! Absolutely.”* He cited as examples a seedling with intense color on the flower scape when neither parent exhibited much scape color, and another with an intensely pie-crust-ed edge when the parents only had slightly wavy edges. *“But the history of the parentage has it somewhere... the ‘stars’ (genes) aligned themselves.”*

Many things influence the names Don attaches to his seedlings. It can be the sound of the word or words in the name, and if they capture some of

(continued on page 12)

ROHS Hosta Friends: Rick and Teresa Innis

By Reldon Ramsey

Rick and Teresa Innis have a Grinnell address, but live in the small town of Newburg - located eight (8) miles northwest of Grinnell - where Teresa grew up.

They've owned their 1926 Sears 'kit' home for 21 years and have spent most weekends there remodeling and working in the gardens.

Teresa likes the garden names of British and American estates and named the house and gardens **The Morninglory** for the 'Heavenly Blue' Morning Glory when they thought it might become a bed and breakfast inn.

The Morninglory became home three (3) years ago after Rick retired, and they relocated permanently from Iowa City. They have two (2) large, level lots (110' x 210') with rear alley access that are bordered on the south by a churchyard. Rick's father and Teresa's mother live in nearby homes.



Teresa remembers exactly when she got her first hostas - Memorial Day Weekend in 1982. She asked her grandma, Lela Adams, if she could dig some of her plants to start a garden. Four (4) plants that she dug

then were hosta. Teresa's earliest gardening memories are of her and her siblings helping in the family vegetable garden "as soon as we walked. My grandmas always had flowers as well." Both shared their love of gardening with Teresa.

Over time Rick and Teresa's yards grew more shaded, and they wanted more landscape interest than lawn and annuals provided. Which led to more hostas. Many of the over

300 hosta varieties in their collection moved to Newburg from their Iowa City garden on the weekend visits.

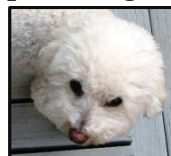
Rick's favorite hosta is H. 'Paradigm' because of its "amazing color, slug resistance, and it stays beautiful". Teresa prefers H. 'Parhelion' because "it's big, bright, and stays beautiful".

Teresa joined the Harshbarger Hosta Society in 1999. "Liz Stratton and Collette Pogue made me feel very welcome, and answered lots of questions. Almost everybody knows more than me about hosta, and everybody has been more than helpful and generous in sharing the friendship plant."

"We are collectors and recyclers. A lot of that goes back into the garden."



Their one-of-a-kind fencing of rusted sheets of die-cut metal provides great visual interest as it defines the north border of their property. Antiques are at home in the gardens and on the porches giving a homey, welcoming feel.



Frankie, their Bichon Frise, is the official greeter at The Morninglory as he guards the perimeters of his territory for trespassing cats.

If they had a chance to start over again, the Innises would establish a healthy lawn first, and they are working toward that now. New chicken yard fencing and a raised bed for dwarf conifers are future projects.

Still members of the Harshbarger Hosta Society, Rick and Teresa joined the Grinnell Area Garden Club in 2007, and ROHS in 2009.

"We enjoy getting to know the other members, being introduced to other gardening sources, touring other gardens, and being inspired. We love sharing as well. Everyone is always welcome. Just give us a call ahead at 319-321-6641, and we'll have the coffee on."

Hosta Travels With Renaldo: WSM

(continued from page 7)



For this year's 'Hostas of Distinction', Mark Zilis recounted his sometimes humorous experiences travelling by himself in Japan last August. He was searching for Hosta *sieboldiana* and other species in the wild on the northern island of Hokkaido. With the help of Hokkaido native, Mikiko Lockwood, whom he'd met at First Look, Mark contacted a Buddhist monk who collects hostas and the owner of a Japanese website featuring hostas in natural habitats. They aided him in his search, and he found several species: Tachi giboshi (*H. rectifolia*) in Niseko Swamp at 2000', and Oba giboshi [*H. montana*] growing at Hoshoki Falls and on a nearby hillside.

Mark found three (3) hostas resembling *H. montana* that were labeled *H. sieboldiana* at the Hokkaido Botanical Gardens, but he was unable to determine if they originated on the island. He observed what appeared to be a naturalized group of *H. sieboldii* in a public garden and noted the differences in plant size, leaf shape, waviness, and flower color. "If you think back to the early hybridizers, they were using a lot of *H. sieboldii* derivatives to get variegated seedlings. What they were getting was a very diverse group of seedlings that probably added a lot to what we see in hostas today. All the plants that came out of *H. 'Beatrice'* probably had that diverse gene pool in their backgrounds."



After saying our goodbyes to friends who left after the final speaker, the Van Wyks, Joanna, and I dined on Irish fare at a 'genuine' Irish Pub. The pub's interior - handmade and shipped from Ireland - created a boisterous, warm and cozy atmosphere on a frigid Saturday night. Our evening concluded in hostatality, making new friends and chatting with old ones. This was the fifth time I've attended Winter Scientific, and each year as I get to know more people, I'm more relaxed and have a wonderful time talking hostas in the midst of winter. Good times with good hosta friends!!

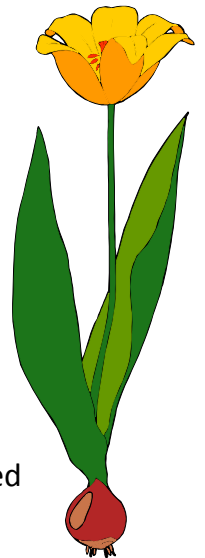


Helen Groeneveld

By Eve Vanden Broek

John Lennon wrote: "Life is what happens to you while you're busy making other plans." This statement rings sadly true for long-time ROHS club members, Dean and Helen Groeneveld. In January, Helen was diagnosed with terminal cancer.

Helen Pearl Groeneveld, 77, passed away Sunday, March 27th, 2011.



Condolences may be sent to:
The Family of Helen Groeneveld
605 Roberts Terrace
Marshalltown, IA 50158

Online condolences may be made to:
www.pencefh.com

ROHS Membership Renewal

Dues are payable January 1st of each calendar year. The year your membership expires appears on your newsletter mailing label.

Membership is \$12/year or \$30 for 3 years.

Please send your dues to the ROHS Treasurer:
David Dettman
122 Bluegill Court
Pella, IA 50219

Make checks or money orders payable to:
"Russ O'Harra Hosta Society"

Payments may also be made at the
spring meeting.

The Hosta Makers: Don Dean

(continued from page 9)

the plant's characteristics. Moods, feelings, and beliefs also play a part in selecting a name for a hosta, or the name may commemorate a friend or a person important in Don's life. Hosta 'Faith' was named in honor of Don's grandmother, Gladys, for her spiritual faith and her faith in him. New introduction, H. 'Her Eyes Were Blue', was selected by past AHS President, Mary Schwartzbauer, and named in memory of her mother.

At the AHS National Convention in St. Louis, MO, Don Dean was awarded the prestigious 2008 Alex J. Summers Distinguished Merit Award. Using recognizability, commercial availability, and importance to him both personally and as a breeding plant as his criteria, Don named H. 'Silver Bay' as his choice for the 2008 Alex J. Summers Distinguished Merit Hosta in his moving acceptance speech.

As of 2009, 44 of Don's hostas have been registered. The first was in 1996 when he co-registered H. 'Geneva Remembrance' with Gunther and Dean Stark. Don registered twelve hostas in 1999, several of which – H. 'Frosted Dimples', H. 'Pewterware', and H. 'Silver Bay' - are now considered hosta classics. Of that dozen, H. 'Bedazzled' and H. 'Fruit Punch' have only become commercially available in recent years. And H. 'Subterranean Pool' is still rare and highly sought after as evidenced by the 2010 AHS Online Auction when two separate offerings of originator stock from Don's garden sold for \$244 and \$227, respectively.

Don has eight (8) of the new hostas listed in Naylor Creek Nursery's 2011 catalog: H. 'Astral Bliss', H. 'Celtic Dancer', H. 'Enduring Beacon', H. 'Her Eyes Were Blue', H. 'Strawberry Parfait', H.

'Strawberry Surprise', H. 'Titanium', and H. 'Tupelo Honey'. In all, twenty hostas from Don's hybridizing program are available through Naylor Creek including both TC and OS forms of H. 'Titanium'. It was an attention-getter in several of the AHS National Convention gardens in the Twin Cities area this past summer. Don's elegant wooded garden combining both a traditional garden and seedlings under evaluation was a convention highlight.



A meandering path leading to Don's seedlings.

Don's additional comments on hybridizing:

"Do everything one can to be sure an intro is worthy of introducing. One dog released can ruin several great plants. Aim for an improvement with the intro otherwise keep it for one's own enjoyment. Register, register, register... Future breeders need something to reference otherwise they repeat our same blunders whereas with registration they may use our results and make greater strides forward with this plant. Hybridizing can be a one-time lucky seedling, but to get improvements and knowledge of the pathway there it takes years of persistence, careful observations, and sharing it with one another to allow others to take it even further!"



2010 Garden Experiences

Marlys Anderson – Pella, IA

Favorite new hosta(s) acquired: I bought H. 'Independence'. I also succumbed and bought H. 'Mighty Mouse' just because it is so darned cute and so is the name. Now will I buy the hosta named for Mighty Mouse's girlfriend, Pearl Pureheart?

What was the thing you enjoyed most about gardening and/or hostas? All the rain!!! Didn't have to water containers hardly at all until the end of the season. Then I about forgot to water 'cause it wasn't in my routine. The hostas were huge from all the rain. That was a good thing. I really couldn't believe how big some of my plants were. Amazing!

What was the biggest gardening challenge you faced in 2010? Three things. 1) We lost 3 trees in a bad thunderstorm - 2 trees shaded hosta beds. 2) Overcrowding in the garden is overwhelming me. It is finally being hammered home hard: "You can't grow 'em all". 3) Disease – Southern Blight/Crown Rot; Pests - Deer, Moles, and Voles.



Teresa Innis – Grinnell, IA

Favorite new hosta(s) acquired: H. 'Silk Kimono' was a large start and looked good all summer.

What was the thing you enjoyed most about gardening and/or hostas? The Midwest Convention and watching a new expansion garden bloom and take on personality.

What was the biggest gardening challenge you faced? Too much rain. Although we only watered the mini garden once and the rain barrel was always full.

Kathleen Hoard – Madrid, IA

Favorite new hosta(s) acquired: My favorite new hosta in 2010 was H. 'Trifecta'. I loved its small size and striking variegation.

What was the thing you enjoyed most about gardening and/or hostas? The thing I enjoyed the most about hostas in 2010 was the reliable and good rains. The hostas responded marvelously with excellent growth.

What was the biggest gardening challenge you faced? The biggest challenge I faced in 2010 was again the rains. We had a lot of wash from the rains in our garden areas. The heavy rains and cooler weather resulted in a very poor year for peppers and the loss of several plantings of annual flowers.



Trudy Van Wyk – Pella, IA

Favorite new hosta(s) acquired: H. 'After Midnight', H. 'Seducer', H. 'Star Wars', H. 'Midnight at the Oasis', and something streaked from the convention auction... can't even remember the name!

What was the thing you enjoyed most about gardening and/or hostas? Hosta friends. Being at hosta conventions and events with great hosta friends who share the love of hostas! Being with other hostaholics!

What was the biggest gardening challenge you faced? All the rain we had last summer was the biggest challenge, but yet at the same time because of all the rain we have grown some of the largest, lushest hostas ever in the gardens! It rained so much that much of our grass was washed out. Thinking it could be to our advantage - we don't have to take out grass to expand the hosta beds!



Don Dean's Hosta 6-Pack

Don feels these six of his registered hostas best achieved the goals of the crosses:

H. 'Silver Bay' – [H. 'Silver Frost' x H. 'Blue Moon']

Texture; substance; reasonable growth rate; intense color that holds late into the season.

H. 'October Sky' – [H. 'Frosted Dimples' x H. 'Salute']

Form; color; substance; reasonable growth rate; holds its color very late depending on the number of 90 degree days and direct sun exposure.

H. 'Forest Firefly' – (H. 'Neat Splash' x [H. 'Crepe Suzette' x H. 'Buckshaw Blue'])

A rare light-centered plant that grows well; neat mound; tri-color - the center starts yellow fading to creamy white with a pleasing lighter green intermediate color between edge and center.

(Look for it to be out next year unless something unexpected happens.)

H. 'Astral Bliss' – [H. 'Cutting Edge' x unknown]

Form; color; substance; reasonable growth rate; holds its color very late depending on the number of 90 degree days and direct sun exposure; wavy edge; distinctive.

H. 'Strawberry Parfait' – [(F-1 seedling of H. [F-1 seedling of H. 'Swoosh' x H. 'June']) x H. 'June']

H. 'Strawberry Surprise' – [H. 'Liberty Bell' x H. 'Noah's Ark']

These plants fit a familiar class of hosta with the bonus of color in the flower scapes where it is easily visible.

Top Ten Reasons Gardening Is Fun

by Jan Riggerbach from "Midwest Gardening"

10. Does not require a remote control.
9. Has nothing to do with politics.
8. You can blame the weather for anything that goes wrong.
7. Looks enough like work to insure solitude.
6. Legal to exterminate your enemies.
5. Right to bare arms – and legs.
4. Allows you to turn your junk into art objects.
3. Does not require fluency in Latin.
2. You can bury your mistakes in the compost pile.
1. You won't be arrested for ignoring 'the rules'.

2010 Performance by a Hosta

BEST // WORST

1. H. 'Guardian Angel' // H. 'Cherry Berry'
2. H. 'Moonlight Sonata' // H. 'So Sweet'
3. H. 'Halcyon' // H. 'Fortunei Albomarginata'
4. H. 'Key Lime Pie' // H. 'Wintergreen'
5. H. 'Millenium' // H. 'Hart's Tongue'
6. H. 'Paradigm' // H. *kikuttii f. leuconata*
7. H. 'Lakeside San Kao' // H. 'Gone Fishing'
8. H. 'Leading Lady' // H. 'Outhouse Delight'
9. H. 'Tequila Sunrise' // H. 'Frances Williams'
10. H. 'Sum and Substance' // H. 'Holy Mole'

2010 Garden Experiences

Carol Leslie – Longmont, CO

Growing hostas in this challenging Colorado climate is quite the experience. It is so interesting to observe how some really thrive into lovely plants and others just give up. H. 'Praying Hands' has been a revelation for me. I tucked it in at the back of the hosta bed as I didn't consider it particularly attractive, but in eight years it has grown and expanded into a strikingly lovely plant.

Minutes of the October 10, 2010 Russ O'Harra Hosta Society Meeting

The fall meeting of the Russ O'Harra Hosta Society was called to order at the Iowa Arboretum by President Barry Laws following a wonderful potluck dinner.

Barry initiated discussion of the just past 2010 Midwest Regional Hosta Convention. He thanked everyone for their involvement and dedication that made the Convention enjoyable, memorable and successful. He then read a letter to the ROHS from the Midwest Regional Hosta Society President thanking us for hosting the Convention.

New business was the election of officers. Barry asked for nominations from the floor and there were none. He then asked if anyone would like to volunteer for one of the offices. There were no volunteers. He then presented a slate of officers for nomination. This slate was: Marlys Anderson, President; Eve Vanden Broek, Vice-President; Teresa Innis, Secretary; David Dettmann, Treasurer; Reldon Ramsey, Newsletter Editor. The positions of Historian and Hospitality were left open. The motion was made to accept this slate for officers and Barry asked for voice vote to confirm these five members as the new officers. The 'aye' unanimously confirmed.

Barry presented the officers and Marlys, as new President, thanked everyone for their show of support. She remarked that the position of Hospitality would be passed around via volunteering and Rick Innis volunteered for the next meeting. The position of Historian will be addressed later.

Barry moved on to the next order of business, the Treasurer's report and that was given by Gary Hoard. Jan Craig then presented Barry an engraved crock as a thank-you from the membership for the great job he did as Chairman of the 2010 Midwest Regional Hosta Convention.

An auction of the odds and ends remaining from hosting the 2010 Convention consumed the remainder of the meeting which was then adjourned at approximately 4:30pm.

Respectfully submitted,
Jan Craig, Outgoing Secretary



H. 'Silver Bay' (Dean)



H. 'Astral Bliss' (Dean)

Photos courtesy of Don Dean

ROHS Website Updated

The ROHS website has a new look and several new features of interest. The society's constitution has been added to the menu. The current issue of "Hosta Horizons" in eNewsletter form is now available along with archived past issues. The April 2011 eNewsletter features additional articles on the Winter Scientific Meeting. Hosta society websites and other hosta websites and forums are easily accessed at [Links](#). The [Calendar](#) includes upcoming ROHS events and other hosta happenings. Hyperlinks direct users to the AHS and MRHS convention sites for registration forms and additional information.

2011 Dates to Remember

Sunday, April 17, 2011

ROHS Spring Meeting,

Neal Smith National Wildlife Refuge,

Prairie City, IA

June 23-25, 2011

AHS National Convention

Marlborough, MA

<http://www.americanhostasociety.org/Conventions.html>

July 7-9, 2011

MRHS Convention in Madison, WI

http://www.wihostasociety.com/html/2011_convention.html

Sunday, July 17, 2011

ROHS Garden Tour & Auction

Marshalltown, IA

The 12 sports of Christmas

1. b 5. d 9. a

2. a 6. a 10. e

3. d 7. a 11. e

4. d 8. a 12. c

First Look Auction Results

The First Look Auction held in February included 58 items - mostly hostas with several offerings of hosta seed and companion plants – and raised \$7947.63.

The three (3) largest money makers were H. 'Betsy' (\$651), H. 'Poison Dart Frog' (\$500), and a Mary Chastain 'gift' seedling (\$374.63).

<http://www.hostalibrary.org/firstlook/HomeFrame.htm>

ROHS Top 25 Favorite Hostas

1. H. 'Sage'
2. H. 'Paradigm'
3. H. 'June'
4. H. 'Striptease'
5. H. 'Guacamole'
6. H. montana 'Aureomarginata'
7. H. 'Parhelion'
8. H. 'Sum and Substance'
9. H. 'Dick Ward'
10. H. 'Love Pat'
11. H. 'Rainforest Sunrise'
12. H. 'August Moon'
13. H. 'Orange Marmalade'
14. H. 'Stained Glass'
15. H. 'Ann Kulpa'
16. H. 'Brother Stefan'
17. H. 'Halcyon'
18. H. 'Liberty'
19. H. 'Luna Moth'
20. H. 'Captain Kirk'
21. H. 'Lakeside San Kao'
22. H. 'Millennium'
23. H. 'Regal Splendor'
24. H. 'Blue Mouse Ears'
25. H. 'Guardian Angel'

The Way You Do

The Things You Do

Hybridizing with Don Dean

By Reldon Ramsey

A stake next to the pod parent holds a rectangle of fiberglass screen folded over the scape(s) creating an 'envelope' held in place by spring clothes pins. This keeps pollinators away and is easy to open and close. It eliminates the need to emasculate each flower the evening before. The screen remains on until pods are harvested to protect from deer.

Flowers are pinched if it is too windy or rainy or if pollen was already transferred to the stigma.

Jewelry tags and a sharpie are used to label crosses. Names of pollen donors are abbreviated. Example: 'Sea Frolic' = SFRLC

"At 30 days, I have harvested to find perhaps one seed mature enough to germinate, often none. I try to allow 45 days for a plump pod with several, but still will find several seed at 45 days that have yet to develop if temps have been cool for many of those days. I have brought later crosses into the house and placed scapes in sugar water to extend days and develop more seeds."

Mature pods are sorted into envelopes which are arranged sequentially by number or alphabet and stored in the cool garage or basement. Seeds are usually sown before the end of November.

Information is transferred into a notebook as seed is sown. Any cross that didn't germinate is highlighted to help determine if the pod parent yields viable seed and is worth using in the future.

Only successful crosses are transferred to an electronic database the following winter to allow for easier sorting and record retrieval.

Numbering system for seedlings:

- 1) year of germination/first year of growth.
- 2) the cross indicating parentage.
- 3) the selected seedling from the cross.

"94-56-2 is a cross made in '93. First year of growth is '94. The 56th cross of parentage H. 'Urajiro Hachijo' x H. 'Blue Moon', and the second plant in the row of seedlings that I kept for further evaluation after I culled at 3 years old. It was registered in '99 as H. 'Pewterware', and sold by Plant Delights in 2003 or 2004."

Simple shelves hold four flats per shelf and are lit by two double fixtures of 4 foot tubes. The shelving is in a heated basement room set at 70F day/65F night.

Using any inexpensive, sterile planting mix, seeds are planted in flats and topped by another 1/4" of planting mix.

The plastic trays are kept covered by a clear dome with lights set just above the dome. At the 3rd leaf stage, domes are set slightly diagonal to allow some humidity to escape, creating a gradual hardening off period.

No watering is done until the domes are removed after a couple of weeks and then lights are kept just above the foliage.

(continued on page 23)

2011 Winter Scientific Meeting Bob Solberg: 'Hosta Ploidy - What It Really Means to Hosta Growers'

Bob began by asking who reads the articles on DNA research first when they receive the *Hosta Journal*. Seeing only a scattering of raised hands, he remarked, *"This is going to be a rough crowd"*. After a more positive show of hands to see who does read the articles, he was encouraged.

His presentation included some of the DNA work on hostas done by Dr. Ben Zonneveld much of which was originally published in the *Hosta Journal*. Steve Chamberlain and Warren Pollock are on an AHS committee that tested plants last summer, and Bob expects additional journal articles from that research in the future.

"We're going to start with a little basic science. This is not going to get over your head. We're not going to use big words. Today we're going to talk about hostas and their chromosomes."

Noting that most in attendance had been out of high school for a number of years, and the huge advancement in DNA and genetic research in the last 30 to 40 years, and especially in the last 10 years, Bob said,

"What we learned is still true. There's just a whole lot more to know."

A chromosome is a body in the nucleus of a cell on which the genes are formed. Genes are made up of a series of nucleotides - chemical bases - that carry the DNA code. A gene may have just a few bases or it may have a lot. A chromosome may have a few genes or it may have a lot. The focus of the talk was on chromosomes – not the DNA or nucleotides. The genome (1n) of a hosta is 30 since hostas have 30 chromosomes. But hostas (and people) have two (2) sets of chromosomes so the 2n number of a hosta is the important number and in hostas it is 60. Organisms with two (2) complete sets of chromosomes are diploid. Three

(3) sets of chromosomes are called triploid. Four (4) sets are referred to as tetraploid. Aneuploides are either missing a few chromosomes or sometimes have a few extra chromosomes. They vary from the norm by just a few chromosomes. Chromosomes have a wide range of sizes.

"Hostas are amazing organisms. They surprise us all the time. Once we think we've got them all figured out, then they'll do something we didn't know they could do. And that's what we're finding with all of this research. Hostas aren't just diploid and tetraploid. They can be half diploid, half tetraploid. They can be aneuploid which means they're missing a few. They've got a screw loose or something. We've got crazy plants, and it's kinda fun. We didn't expect any of this aneuploidy. Aneuploidy is extremely rare in all plants."

"Why do we care about this?"

If chromosomes are added, it changes the plant. Going from diploid to tetraploid changes the look of the plant.

"If you have a plant that has a floppy scape you can fix that by making it tetraploid."

Hostas can look like tetraploid plants with thicker substance, shorter scapes, etc. and still be diploid. This is especially true of seedlings. H. 'Sharp Dressed Man' (a seedling of H. 'Francee') and H. 'Frosted Mouse Ears' both look tetraploid, but have been found to be diploid when tested.

Several times Bob has found one young plant in a block of plants at his nursery that looks unlike the others. He has pulled that plant out for further evaluation, and the next year it has looked like all the rest. He concluded that it grew differently when it was young, but grew normally as it matured.

Gold Hostas

Bob explained his dislike for the change from the use of gold in hosta terminology to yellow:

“On the gene level, think of it this way - gold hostas, what I guess we call yellow hostas now and I hate that, but they’re gold. There are yellow hostas that are yellow because of variegation. Their chloroplasts make them yellow and that’s inherited maternally. Gold hostas are caused by a nuclear gene. So just because the horticultural world says there’s no such thing as gold, for us there is. There’s a difference.”

“Gold hostas are caused by having one gene that mutated. It’s both a dominant and a lethal gene. It’s really nice. It fits all of those Mendellian squares that we do like the peas. It’s very, very simple. You know what you’re going to get every time you cross. If you’re just starting out in hybridizing, do some gold plants. It’s really easy, and you know what’s going on. And you’re guaranteed to get some every single time. You just can’t beat that.”

In a diploid gold plant, there is one dominant, lethal gene on one chromosome creating gold chloroplasts, and on the matching chromosome there is a recessive, green gene creating green chloroplasts. The plant creates both green chloroplasts and the ‘broken’ yellow ones that don’t photosynthesize. With a tetraploid plant, the number of chromosomes is doubled so there are four (4) positions where the ‘broken’ gene can be located. There could be three (3) lethal genes and one (1) green gene making three (3) times the gold and one (1) times the green resulting in a different color. Or there could be two (2) and two (2), or there could be one (1) and three (3) and not be very gold in color.

“We don’t really know what colors we’re going to get. We’re not that far along. This is why tetraploid is important. This is why the daylily people are so excited about it because they deal with flowers and they can change all of those colors. There are a lot of different options.”

Changes of Ploidy

“We think of a hosta - if it’s a diploid - as having all diploid cells. All have two (2) sets of chromo-

somes. Plants are really good at changing ploidy. The strawberries we eat are octoploids.”

If it were possible to look at all the cells in a leaf of a diploid hosta, we would find naturally occurring tetraploid cells. They were in part of the meristem where they didn’t influence the entire plant. There isn’t any evidence in hostas in testing so far that they go beyond tetraploid, but it is possible since other plants can have a higher ploidy. (A study of red maples showed they are 12n.) There is normal variation in leaves. Hosta roots are very different and have tetraploid cells naturally. This is called endoreduplication. 25% to 40% of hosta roots are naturally tetraploid and occur in the cortex or the center of the root. Hosta DNA studies must take into account the naturally occurring tetraploid roots.

“That’s as heavy as we’re going to get. Everything now is easy. Just plants and pictures.”

Origins of Tetraploid Hostas

*“How did the tetraploid plants and the aneuploid plants show up in our lives? In the old days, we didn’t have them except for a few species. *H. ventricosa* is tetraploid naturally although it doesn’t look like what we think of as a tetraploid. It doesn’t have the thick leaves, but when nature does it, they make it look like everybody else. It’s a different ballgame. It’s not fair to compare *H. ventricosa* as a tetraploid to our converted tetraploids. *H. clausa* is triploid. So nature does it on its own.”*

When plants are propagated commercially, two (2) key things happen differently than in nature. Plants are grown in pots and they are produced by tissue culture.

John Machen at Mobjack Nursery in northern Virginia grew lots of hostas in containers, and when there are lots of hostas in containers, there are lots of weeds. He didn’t like weeds, and he didn’t want to pay workers to pull weeds so he used herbicides to deter the spring weeds. He used Surflan® and Treflan® in all of the pots over winter - apparently very liberally - either mechan-

ically or by hand. Some of the hostas got a large dose and the chemicals converted some of the diploid hostas to tetraploids.

"Imagine when a cell divides. All the chromosomes come to the center and double, the spindle pulls one side one way and the other side the other way, the cell wall forms and there are two (2) cells where there was one. But the chemical affects the spindle, and it doesn't form so the process is stopped. All of the chromosomes are replicated, but it doesn't divide so there is a big, fat tetraploid cell. It's that simple."

If enough cells occur like this in the growing tip of the plant, they become important cells and become the precursors to many more cells that are tetraploid. The current theory is that the edge of the plant - the top layer of cells - is the easiest to be affected since it is closest to the herbicide. Most tetraploid hostas have tetraploid edges.

Tetraploid plants originated at Mobjack Nursery in the early 1990's are H. 'Minuteman', H. 'Patriot', H. 'Grand Tiara', H. 'Night before Christmas', and H. 'Liberty'.

"He was using a lot of herbicide, and it was working. The other thing that happened about the same time was that tissue culture labs all over the world really got cranked up."

Large quantities of plants were being produced. Labs used different concentrations of the auxins in the TC process. Like herbicides, auxins can also change the ploidy of hostas from diploid to tetraploid. Usually only the top layer of cells is affected, but in tissue culture, the plants are so tiny that the auxins can soak through all layers converting the entire plant. Or the inside can be converted and not the outside. Sometimes the roots are converted and not the leaves because the tissues are much smaller.

In almost all examples, ploidy is increased from diploid to tetraploid, but in a few instances the ploidy of a plant has become smaller.

"Anytime those kinds of things happen I start to wonder how. We need a mechanism. My whole point of this is I don't argue with you about your science, but your science has to match up with my science and everything has to fit together, and then I have to know why. I went to graduate school. They told me that was the rules, and I'm still playing by them."

Fielding a question about hosta ploidy beyond tetraploid, Bob said there is one hosta with six (6) sets of chromosomes, but it was converted from a triploid so the number of chromosomes was still only doubled.

"There may be a wall there, but we don't know how far they can go. Maybe those cells form and they're so screwed up that they can't divide. There's so much junk inside that when they go to do the spindle thing and everything that it's a big mess, and they get tangled up and it turns into a knot and it doesn't work. It is a mechanical process, and bad things can happen. We don't know yet. In ten years, I may be standing up here telling you about octoploid hostas and how tiny - they all are miniatures now. They're octoploids, these heavy substandard little things that don't grow and just sit there like plastic plants with short fat scapes and the flowers are HUGE. You never know."

"Hostas continue to amaze me to this day. Every time I think I've got them figured out they laugh at me."

Chloroplasts

"Chloroplasts. I don't know that anybody has really thought about too much. If you have a tetraploid plant, you have twice as many genes. You can make twice as many chromosomes. Or at least you can control the production. This is what the nucleus does. Chloroplasts have their own DNA and divide themselves, but they're controlled by the nucleus. And I think some plants like H. 'Minuteman' are so dark green because they have more chloroplasts. Do they have twice as many? I don't know. They may not all fit in the cell."

Studies have been done where ploidy was determined by counting the number of chloroplasts in stomata cells. A larger number than would be expected means the plant is tetraploid. Cell walls are thicker so in a sense the cells are bigger than diploid cells.

Bob's Ploidy Tests

Bob uses four (4) tests to determine the ploidy of a plant, and it has to pass all of them.

1] Morphology

Using a visual comparison of mature plants, H. 'Halcyon' and its tetraploid sport, H. 'Bulletproof', Bob noted the differences. A mature tetraploid hosta is smaller with shorter petioles making the plant more compact, and the leaves more dense. The leaves may not be as flat and can exhibit cupping or doming. The substance of a tetraploid plant is greater so it may be more slug resistant. The bloom scape is shorter and thicker with flowers closer together creating a more attractive display. The flowers are larger (generally wider than longer), and the tubes, flower parts, and pollen are bigger, but the seed pods are shorter and fatter. Tetraploids have shorter roots, and a slower growth rate. Variegated tets usually have wider margins and narrower centers than their parent plants.

2] Flow Cytometry

This test measures the amount of light that fluoresces off of tiny pieces of leaf tissue from a beam of light. The amount of DNA present is measured on a scale. Agave is used as the standard for comparison since it is diploid.

3] Hybridizing

The cross of diploid x diploid yields a diploid. A tetraploid x tetraploid cross results in a tetraploid. A diploid x tetraploid cross gives a low percentage of tetraploids, some diploids, and some triploids. A group of seedlings from a diploid crossed with a tetraploid will look very different. In the 'old days', hybridization was used to determine if a plant was tetraploid. Tetraploids generally cross more easily with other tetraploids than diploids.

Tetraploid x tetraploid seedlings start to lose the 'induced' look and are more natural appearing with more natural leaf shapes and not such thick substance.

"You start to build a line of plants that will be totally tetraploid for a long time. My hope is that since we can use all of these different genes then we can fix some of the sterility problems we have with certain groups of plants."

4] Sport Analysis

This is Bob's term for comparing sports of plants with different ploidy in their layers to see if they act diploid or tetraploid. To illustrate 'Sport Analysis', Bob showed pictures of sports with a change in ploidy and their parent plants as he discussed the differences.

In H. 'Patriot', the border layer is tetraploid while the center layer is diploid; H. 'Minuteman' is tetraploid on both layers. Both are sports of H. 'Francee'.

Next was an unnamed plant of Bob's similar to Marco Fransen's H. 'Happy Days'. Both are sports of H. 'Orange Marmalade'. H. 'Sara's Sensation' is a sport of H. 'Frances Williams'. H. 'Atlantis' is an H. 'Abba Dabba Do' sport. All have much wider variegated margins than their parent plants.

H. 'Summer Breeze' sported from H. 'Summer Music' which had sported from H. 'Shade Master'. H. 'Shade Master' may be one of the first hostas converted to tetraploid in the tissue culture process. It is a Paul Aden plant that was mass-produced in TC by Khlem Nursery. H. 'Shade Master' has been tested to be tetraploid in all cell layers. H. 'Summer Music' is inexplicably tetraploid on the edge, but not in the center. And H. 'Summer Breeze' is completely tetraploid.

H. 'Stitch in Time' - a H. 'Summer Breeze' sport - is an aneuploid in all cell layers. All of its layers are different so it's not totally tetraploid on any layer. When chromosomes are lost the look is 'weird', and the plant can't function normally.

In discussing H. 'Totally Awesome', a sport of H. 'Sum and Substance', Bob remarked:

"(It) is NOT. It's hard to keep alive. I'm sure it's an aneuploid. It's a mess genetically."

H. 'Snow Cone' is an improved white-centered plant with a wider green margin than its parent, H. 'Night before Christmas'. This isn't always the case. A yellow hosta with a wider white margin would grow more slowly and burn more easily.

"Just because a plant is a tetraploid doesn't mean it's a better plant. It's a thicker plant, but not necessarily a better plant."

Cell Layers

Ben Zonneveld wrote a paper on cell layers which was summarized in the *Hosta Journal* in 2007. He proposed that hostas have three (3) layers of leaf cells rather than two (2) as had been previously thought.

Imagine a cross section of a hosta leaf that has been cut in half. The border or leaf margin is L1 and covers the entire leaf. It is the 'epidermis' of the entire leaf - the outside of the scape, the outside of the flowers, and the outside of the anthers. *"It's everywhere."* Zonneveld refers to this layer as a 'glove'.

L2 is a fairly insignificant layer and does not extend all the way to the edge of the leaf. The example given was H. 'Striptease'. Zonneveld contends that the white line around the center is the L2 layer showing through. It is the layer that determines the pollen and the gametes (eggs) and so it determines what the seedlings will look like, but it is rarely seen.

The L3 layer is the center of the leaf and the roots are only L3. Even if L1 and L3 are different ploidy, L2 is usually the same ploidy as L3. Looking at the center of the plant usually determines what the seedlings will look like. L1 and L2 are both only one (1) layer of cells. L3 is three (3) or four (4) layers of cells thick.

"So we can think of it as having two (2) layers still and get away with it."

"If it's (tetraploid) in the flowers, then it's probably in the center of the plant. If it's not in the flowers, then it's probably just on the edge."

Color Differences

Green-centered hostas with white margins have different chloroplasts in the edge versus the middle. They have two (2) types of tissues - good in the middle and broken on the edge.

In hostas with a gold edge and a blue or green center, the chloroplasts are different because the genes are different at the nuclear level. Two (2) tissues with different genes or two (2) tissues with different chloroplasts account for differences in color in the margin and center.

There can also be two (2) tissues with different sets of chromosomes - both diploid and tetraploid - in the same plant.

Bob used H. 'Avacado' - the wider margined sport of his plant H. 'Guacamole' - as the example of this unusual phenomenon. H. 'Avacado' is difficult to TC and many all green and all yellow plants occur. H. 'Avacado's green edge is tetraploid and H. 'Mojito' is the all green sport while its yellow center is diploid, and H. 'Cerveza' is the all yellow sport.

Some of the green sports of H. 'Avacado' have dark green streaks and light green streaks. If a hosta can have streaked colors, then it's possible to have a hosta with streaked ploidy. In theory, the seedlings could be both diploid and tetraploid because both sets of gametes in the L2 layer would be present just like a streaked hosta produces both green and variegated plants.

The resulting light and dark green streaked plants stabilize. The light green diploid tissue grows faster than the dark green tetraploid tissue just as green tissue grows faster than white tissue in a variegated plant. They eventually stabilize to the diploid H. 'Fried Green Tomatoes' which sported from H. 'Guacamole' and not the tetraploid H. 'Mojito' from H. 'Avacado'.

Aneuploidy

Bob had H. 'High Noon' in TC, and out of 1800, one had a light green edge and was named H. 'Five O'Clock Shadow'. It was tested and found to be totally diploid. When it was put into TC several different plants resulted. One with a wide margin and narrow center was named H. 'Five O'Clock Somewhere'. When tested, it had an 'almost tetraploid' margin with a diploid center.

"It's actually an aneuploid, but it's only missing a little stuff maybe."

Also in that TC batch was the plant that was named H. 'After Midnight' which is fully tetraploid on the edge and diploid in the middle. Another plant named H. 'Iris Frazier' was almost triploid on the edge and diploid in the middle. It is missing lots of chromosomes, but grows well. Aneuploidy is not well understood yet. Plant growth may depend on which chromosomes are missing, if they are important, and if there are enough genes in the rest of the plant to make up for the ones that are missing. It is not possible to know if the missing genes are dominant or recessive.

"It gets complicated when we go back to the gene level so we're not going to go there. We know how we double the number of chromosomes, but how do we start losing them?"

There were just as many H. 'Iris Frazier' plants as H. 'Five O'Clock Somewhere' plants in the TC batch so Bob thinks that whatever happened occurred fairly early in the tissue culture process.

H. 'Sum and Substance' is triploid and behaves very strangely when it sports. Bob's sport from it called H. 'Final Summation' has a wider margin unlike most of H. 'Sum and Substance's' margined sports which have narrow margins. When it came back from TC, there were also all yellow and all green plants. H. 'Final Summation' grows about the same as H. 'Sum and Substance' – possibly a little slower. The yellow plant also grows like H. 'Sum and Substance'. The green plant does not grow very well.

"So can we assume that it's hexaploid in this case? It's actually an aneuploid. Both the green and the variegated plants tested the same even though they don't act the same. Did they lose different chromosomes - possibly in different layers? Possibly in the edge that makes the plant grow? As more testing is done, it gets more complicated. Every time we get an answer we get three (3) more questions which is what drives science. Which is interesting to me and puts some of you to sleep."

When looking for sports, Bob suggested using the four (4) tests he uses - especially morphology, sport analysis, and hybridizing.

"If you get seeds you may get some pretty neat plants. There aren't a lot of tetraploid seedlings. All of this is on the frontier. In ten years, we may be talking about all kinds of fun things."

The Way You Do

The Things You Do

Hybridizing with Don Dean

(continued from page 17)

A heavy cull is done at the 3rd true leaf stage and seedlings are transferred to individual pots. 72 cell for very small plants or 36 cell for larger and faster growers.

Seedlings are top-watered only when the planting medium dries out on top to help minimize damp off. They receive a half-strength feeding of MiracleGro® fertilizer every other watering.

Seedlings are planted in the next size pot after a couple of months.

(continued on page 28)

2011 Winter Scientific Meeting **Kevin Walek: The Hosta Registrar – What’s Behind the Curtain**

Past AHS President, Kevin Walek became International Registrar for the Genus *Hosta* when his term as president ended in 2005. He is an entertaining speaker, and his talk was fueled by his sense of humor and filled with good information. The two (2) questions he’s most frequently asked: *“What’s a registrar?” and ‘Why do you do it?’ My wife asks me that question.”*

In May 2010, he also became registrar for the American Hemerocallis Society. He is the only registrar in the world other than the Royal Horticultural Society that handles more than one species. Daylilies and hostas have the most new registrations each year. He hoped to de-mystify the registration process and make it clear why hostas need to be registered.

Kevin asked his audience if any have registered hostas. Seeing a few hands, he next asked who had named hostas that are unregistered. Many hands were raised after the second question. *“We need to get you.”*

“I have yet in 17 years of presentations to ever finish a presentation. That’s probably because I talk too much, and I go off on experiences, asides, tangents, whatever. And I also like to answer your questions.”

Currently there are three (3) Angiosperm Phylogeny Groups attempting to have the Genus *Hosta* moved to another taxonomic family group. One group wants hostas to be included in Asparagaceae while another group wants them to be in Agavaceae. The third group that Kevin and W. George Schmid are a part of want Hostaceae. *Hosta* and agave have the same number of chromosomes, but Schmid feels that hostas should not be categorized with agaves since they are native to equatorial regions.

ICRA and the ICNCP

A registrar has nothing to do with any of the Taxonomic Hierarchy until after species. He deals with inter-specific crosses or cultivated varieties which are more commonly called cultivars. These can be either seedlings or sports.

In the 1850’s, groups in Europe and the United States decided that there needed to be some sort of scheme to cultivar names. The same names were being used for plants of different species causing confusion for both plant buyers and growers.

“It started way back then and it’s taken us until now to almost get it straight.”

Mr. Walek is a member of ICRA, the International Cultivar Registration Authority, and is responsible for applying the rules of the International Code of Nomenclature for Cultivated Plants or ICNCP. The ICNCP’s primary purpose is to promote uniformity, accuracy, and stability in the naming of agricultural, forestry, and horticultural plants.

The first official ICNCP was published in 1953. The 2009 edition is now in use and precedes seven (7) previous editions. It has 35 sections, and the longest section has 25 sub-parts. Work has already begun on the 2014 version.

“I am a lawyer. You have to either be a lawyer for a living or C.H. Falstad to enjoy the code.”

The ICNCP code is not as strict as any plant breeder’s rights or patent law. Code is agreed upon by a group that is sanctioned by the United Nations. The code states that if a plant is patented or has been granted plant breeder’s rights, the registrar must accept the plant’s name even if it is in violation of the code.

Example: Hostas ‘Karen’ and ‘Karin’. Past AHS President, Bob Olson named H. ‘Karen’ for his wife and registered it in 1999. Gerard Heemskerk of Holland named H. ‘Karin’ for one of his daughters and introduced it in 2005 with plant breeder’s rights.

Plant breeder's rights in the European Union and Canada are much harder to obtain now. Applications that were placed before laws changed in recent years have since been abandoned.

The Registrar's Functions

After registration papers are returned to him, the registrar records the names, the data about the plant, and creates an accessible archival database.

Kevin is attempting to get electronic publication of cultivar names in the online Hosta Registrar's database to be accepted by ICRA. Currently a name has to be published in a hard copy to be considered official.

Posting a picture of a new hosta with its name on the Hosta Library is not sufficient to hold the name. It must be in print or the name can be used by anyone if their plant is registered first.

"I do not have the authority to judge traits or qualities or whether or not something should be a registration. All of you thought I should be disapproving cultivars that are just the same as something else. I don't have that authority. I don't have the authority technically to disprove them being named."

When he started in hostas and was preparing for the 1995 convention, Kevin visited Alex Summers who had every registered cultivar at the time – 1850.

"Quite frankly even then a lot of them looked alike. And whether the ploidy is different or not - they still look alike."

"What color or color combination of hosta is the most registered in 2010? Just plain green."

Almost half of those are related directly or indirectly to *H. sieboldiana* or *H. sieboldiana* 'Elegans'.

"Mindblowing. You don't find a whole lot of difference."

He noted that in the last few years, a number of hostas have been registered with *H. pycnophylla* in their backgrounds.

*"I would not buy 250 of the (296) hostas that were registered. I might consider some of the rest. That's MY personal opinion. It doesn't mean you guys wouldn't like them. Doesn't mean they wouldn't work well for your yard. You might like having little nuance differences. Me – I'm to the point I'm too old to SEE the nuances. So that's where I'm coming from. And at the same time there are enough hostas out there to make us all happy, because I don't know too many of us who have yards big enough to hold 4810 hostas at one time with most of them being *H. sieboldiana*. I cannot judge whether or not that plant is worthy to be registered."*

Kevin shared his opinion on hosta registration:

"If you're going to use a hosta in your breeding program, you should register it. If you're going to put a hosta into the marketplace either by selling or by giving numbers of it away, it should be registered. If you're only going to keep the plant in your garden, you should probably name it but don't TELL anyone the name. There have been several instances in the last few years where a garden name was seen by someone else. That person named a plant of theirs the same name and registered it first. The registrar has no control over that. A lesson for the future."

"I hear these stories all the time: 'I don't have time to take the pictures. I don't have time to fill out the paperwork.' It takes me almost as long to enter the data you submitted as it does for you to write it down. I have to put in hyperlinks for some of the pictures you submit. I have to file this. I have to maintain the files. Between hostas and daylilies, I'm processing nearly 2700 cultivars a year. My full time job I go in at 6am and don't get home until 4pm. And you don't have TIME to register your hosta? Some of you - that may be true. Some of you may have a wife who cares."

Registration Issue/Registrar's Website

The registration issue of the *Hosta Journal* is the 'checklist' that the AHS is required to publish yearly as the International Registrar for the Genus *Hosta*. Kevin is looking into publishing it by email to cut costs to the AHS.

In 1992, the first compilation of hosta registrations was published and is known as the "Silver Book". The "Silver Book 2" was published in 1998. There is some discussion about publishing a "Silver Book 3". A new volume has not been published since 1998, because the AHS began doing a registration issue in 1999 with the first issue of the *Hosta Journal* each year. Kevin stated that if all of these are combined in a large binder, *"Then you really have the next "Silver Book"."*

At the Hosta Registrar's website, every year's registrations can be downloaded. The index of all registered names can be accessed there also.

"How many of you have been to the hosta registrar's website?" Surprised by the large response, he said, *"But I think each one of you complained about it."*

Most complaints concern incorrect mature plant sizes listed for many plants. Other registration errors include incorrect plant color. H. 'Big Daddy' was registered as having a gold center. H. 'Blue Cadet' was registered as having a white edge.

"Now that somebody has left this earth, I - as registrar - have the authority to fix errors. This year for the first time we will be re-registering eight [8] hostas. It's highly likely that if somebody shares with me the information that they have which is very, very telling, there could be as many as 50 additional re-registrations where the originator will change. I think some of you can even guess - there's some nods and very knowing nods coming on that one. I already have ample evidence from my deceased mentor. Alex Summers had practically everything he gave to somebody that got registered. And I have another person who may be willing to give me their list of everything that they originated that was register-

ed by this other 'originator'. For those of you who don't know - (I'm referring to) Paul Aden."

Kevin then explained that the 'missing' issue of the *Hosta Journal* is actually the front part of Paul Aden's book with his catalog at the back. This happened when Aden was the journal's editor.

"I am supposed to be publishing all registered hostas, all hostas that have been patented or receive breeder's rights, and I am supposed to be keeping a list and publishing all established hostas. I think I'm going to take care of that by saying: 'See Zilis's book.'"

He hasn't had time to do this, but he does have 6000 catalogs that he needs to look through for established, unregistered hostas that need to go on that list.

"Don't look for it until Mark Zilis's next book. Mark is my savior with the data stuff and historical context."

Rules of Naming Hostas

"I have no statutory protection. So if I commit a fraud, and somebody sues me, it's against me. Yes - I do have an umbrella policy."

Kevin asked, *"How many people here have had a name rejected?"* Hybridizer Randy Goodwin answered that a name he had submitted - 'Best of Show' - was rejected. Kevin said, *"There is a provision that says you cannot exaggerate the qualities of a plant. Now it may have won best of show, but will it always win best of show?"*

Key parts of the code:

A name must be unique and the epithet must be in a modern language other than Latin.

A name cannot be confused either in spelling or pronunciation with an existing one.

A name cannot be interpreted as being likely to exaggerate.

A name cannot be objectionable.

He asked the audience their reaction to the name 'Crystal Nacht'. There was an audible gasp. The hybridizer who submitted the name said it was what their parents called the stars in the sky when they were little, but it has a very different meaning because of the gas chambers used during WWII in Nazi Germany's concentration camps.

"H. 'Dumb Blonde'. I'm guilty of letting one through. Things happen when you're busy. I probably in retrospect would have rejected that, but once it's out and published I can't pull it back. I can make mistakes."

"If you can't find a version of the code, just walk yourself through some thought processes:

- 1) Go to the hosta registrar's website to see if the name has been used previously.*
- 2) Then 'google' the entire name with Hosta in front of it.*
- 3) If you have a doubt, email the registrar.*

"I'm even willing to argue with you and lose."

He commented that audience members, Mark Zilis and Jim Schwarz, had both succeeded in changing his mind about names he had originally rejected.

Five (5) years ago he drafted "How to Register a Hosta" - a pamphlet that was never reviewed and approved by the AHS.

"Region One, at the time, offered to publish it. I don't know if they're still willing to do that. We're hoping to get it out there now."

He is currently working out details of a 'Names Committee' with Tom Micheletti and Rob Mortko. It will function like the committee he works with for the American Hemerocallis Society. Kevin submits a group of names that have been received for new daylily registrations to the committee members by email. They assist him with the search process and have to respond back to him in 24 hours.

Reserving a Name

The Hosta Registrar has had an informal name reservation policy in place starting with the registrar before Kevin's predecessor.

"If you're going to reserve a name, there are a couple little caveats. If somebody else comes in with paperwork for the name, I will call you to let you know that that paperwork is in (and ask) do you have one ready to go? If you don't, then you need to relinquish the name. I want you to pay the \$5. Not for me personally, but to go to the society."

The cost to register a hosta is \$5, and a name can be reserved for an additional \$5. (The cost to reserve a daylily name is \$6 and \$15 to register.) The American Hosta society accepts PayPal for hosta registrations.

"I have been the daylily registrar since last May. I have not had a day pass when I did not get a registration for a daylily."

He received over 25 registrations Friday evening and also a PayPal notice that they are all paid.

"There is a totally different mentality. Daylily people RUSH to my door to register. The hosta people RUN from my door and don't register. There's a different mentality there. I'd like to see the hosta people move over. Hostas were my first love. They're still my first love."

Hosta Registrations and Color

The issue of color names in hosta registrations is a pet peeve with Mr. Walek. He showed the hosta color wheel created by the 'sports group' several years ago saying it was a useful tool. He doesn't expect anyone to buy the Royal Horticulture Society's color cards, because they are too expensive and can be easily lost or damaged.

He suggested, as an alternative, a website which is a good source for color terminology. He will link it to the hosta registrar's website. The user needs to calibrate the color settings of their computer monitor to properly use the site. Moderately priced software is available for the task.

Kevin suggested bringing a leaf inside to compare to the chart to determine the color name. In this way, there would be consistent color names used for hosta registrations. There are many shades of blue, but most blue hostas are just registered as 'blue'. To illustrate his point, he asked Don Dean the color he had used to register H. 'Silver Bay'. Don replied, "Blue". Kevin asked him the color he'd registered H. 'Astral Bliss'. His response again was "Blue". The actual leaf should be used - not a digital image of the leaf - since outdoor lighting conditions affect picture color.

A section of the registration form is to record seasonal color variations, the grower's location, and any 'Notable Characteristics' such as the amount of light or shade the plant receives, and early and late season color changes. Only about 5% of registrations include any 'Notable Characteristics'.

"What I want is the most complete registrations possible."

Registered Size

Kevin next gave a pop quiz. He showed three (3) nursery catalog descriptions for the same plant. He asked the audience to guess the hosta, but not say the name aloud until everyone had read its registration description which was shown last.

"I'm not saying that ANY of them are right."

The plant was Bob Solberg's H. 'Guacamole'. Each catalog listed a different mature size ranging from small to large. H. 'Guacamole' was registered when it was a three (3) year old plant.

"At one time it was the registrar's opinion - not this one - that you register the size of the plant at the time you registered it. Bob follows the rules. At the time he registered it, it was 18" wide x 10" high. Now this is what I want to say to everybody in the room who has registrations out there: 90% of you who raised your hand when I asked if you had complaints were complaints about the wrong size. You got part of your answer, but I can't change it until you die. But YOU can change it while you're living. If you're living and you know

one of your registrations is that way - the registrations were not supposed to be that way - it was supposed to be the size of the plant when it was mature."

Kevin concluded by showing two (2) pictures of the same hosta leaf taken at the same time of day. One was shaded and the color appeared very different than the picture taken in natural light. This illustrated Kevin's point about time of day and the amount of light when a picture is taken. He stressed that pictures should not be used to determine the color of a leaf for registration purposes. Ideally a picture of a hosta should be taken while it's being shaded with a white umbrella. The resulting picture will be truer to the actual leaf color.

Hosta Registrar's Website:

<http://hostaregistrar.org/>

RGB to Color Name Mapping:

<http://web.njit.edu/~kevin/rgb.txt.html>

The Way You Do

The Things You Do

Hybridizing with Don Dean

(continued from page 28)

Flats are hardened off outdoors when threat of frost is minimal. At that time, another cull occurs. Don acknowledges that with his culling regimen to free up space, he's probably tossed some 'dandies'.

Records are updated and permanent labels made for each seedling that is kept.

Seedlings that bloom and set seed in the 1st and 2nd year are tagged and seeds are sometimes grown.

"Sometimes one is so good that it is kept!"

(continued on page 33)

2011 Winter Scientific Meeting

Ron Livingston: Are Our Hostas Going to the Dogs?

Ron began by explaining that his love of dogs began as a boy when his life was saved from a fire by his family's dog. He's owned many different dogs over the course of his life, and when they've died it's caused him heartache.

"Imagine if you had a generic clay model dog, and you could do some things to it. Stretch it, pull it, round it, flatten it. Think what you would have to do to make a Pinscher - pull the nose out; if you want to make a Boxer - push it in; a Dachsund - roll it down and pull it out; long floppy ears on a Beagle. I like to use clay to do that rather than hybridize them. What you'd be doing is what dog breeders and hybridizers have been doing for years, but with clay it's much faster. "

Genetic Diversity of Dogs Breeds

Dogs are the ultimate in diversification. No other species is more diversified than dogs. He showed pictures of dogs with a very wide diversity of extreme characteristics.

"If you look at where dogs have gone in the last 15,000 years, you can get an idea of where hostas can go in the future. I'm trying to make a point here that the possibilities of diversity are beyond the imagination. Hopefully hostas CAN go the way of the dog. All the dogs - all those different kinds came from one animal - the gray wolf. So one animal was able to become all these different kinds of animals. The DNA between a wolf and a dog is 99.8% the same.

"People brought wolf puppies into their caves wherever they lived, and the less aggressive ones eventually lived with them. One theory is that the wolves came to man first. The ones that weren't as afraid came, hung around, and ate the scraps."

Over time, man selected the offspring with the most desirable traits and mated them together.

These dogs had skills and abilities that were useful. Later, people became more interested in how dogs looked so they started to select and breed in a new direction. They developed purebreds. There are over 450 breeds of purebred dogs. A more recent trend has been 'designer' dogs where two (2) different breeds were combined. One problem with purebred dogs is that bad genes are passed on over and over again. Great Danes have hearing issues; some breeds have hip problems; others have eye problems.

"All dogs belong to the species canus lupus. According to W. George Schmid, there are 40 species of hostas. And yet one species made all of those different dogs. With 40 species we should be able to go pretty far. What can be done with dogs can be done on a much larger scale (with hostas), because we have so much more to work with."

Ron's Hybridizing Experiences

In breeding hostas, Ron is trying to improve weaknesses like poor substance as he attempts to achieve better form, leaf shapes, and colors. He suggested using a clay hosta leaf to help develop desirable leaf characteristics.

"I'm going to share some of my experiences with you. Sometimes I worked in one direction, and it led me to another direction. I find that happens with my hobbies. One hobby leads to another one.

"I'm going to tell you how my hybridizing evolved. How I got hooked on hybridizing. I bought a new home, and it had some hostas. I hadn't paid too much attention to hostas. I'd done some landscaping, cutting lawns, digging and trimming, and all of that stuff. In the back of the yard was about a 100 foot row of Hosta plantagenia, and I didn't think too much of it. When that big, long row of those things started blooming, and you could smell it, I was knocked out. I was just unbelievably hooked on hostas from then on. From that first whiff of it, I started going down to the nursery and looking at different ones. I went to other nurseries, started collecting, bringing them home.

“One day I was walking around the neighborhood, and I met Stuart Asch. He lives about five blocks away from me. And he showed me some of his creations. It was inspiring! After seeing what Stuart did, I wanted to try my hand at hybridizing.

So I started off with the normal classics making crosses with available pollen. I collected seed. I learned how to grow them under light. It was kind of random at first, but it did spark new ideas. So I decided to make a hosta that was ‘pretty’.

A Mysterious Attractiveness

As he thought about hybridizing, he started thinking about what he found attractive in people. The color of hair, the color of eyes, certain physical attributes. He showed photos of multi-ethnic actresses, actors, and models illustrating his point.

“One day I stumbled upon the idea that the ones who caught my attention the most were the ones that were mysterious. Those people that were the most mysterious didn’t fit any particular nationality. A mysterious attractiveness. They were multi-racial and (had) multi-national backgrounds. They had that special something.”

“This got my mind really cooking when I saw all of these, and I started thinking about it. And I asked myself, ‘What would an Italian Eskimo look like?’ I asked myself that question a lot, but I never did get an answer. I don’t know what they would look like. When I do my crosses I think about that. When I look at the pod parent and all the different pollens I shared.”

Ron’s Crosses/Unique Names

Ron’s presentation was very visual. He shared his own excellent photos of many of his hybrids.

“H. ‘Atom Smasher’ is my first Italian Eskimo.”

It is H. ‘Ginko Craig’ crossed with H. ‘Chartreuse Wiggles’. He took it a step further and crossed M1280 (a streaked H. ‘Marbled Cream’ seedling) with H. ‘Atom Smasher’, and that cross yielded H. ‘Alakazaam’. H. ‘Atom Smasher’ x H. ‘Stiletto’

resulted in H. ‘Hacksaw’. He crossed it with a red-petioled hybrid and got H. ‘Red Hacksaw’.

H. ‘Red Dragon’ was achieved by a cross of ([H. ‘Elvis Lives’ x H. *plantagenia*] x H. ‘Red Neck Heaven’). H. ‘Red Dragon’ x ‘Atom Smasher’ generated H. ‘Atomic Dragon’.

He crossed H. ‘Atom Smasher’ and H. ‘Salute’, and named a seedling H. ‘Self Assured’. It has the upright form and frosty color of H. ‘Salute’ and the leaf shape of H. ‘Atom Smasher’.

By crossing H. ‘Atom Smasher’ with H. ‘Elvis Lives’, he got both H. ‘Atomic Elvis Blue’ and H. ‘Atomic Elvis Green’. Similarly, by crossing H. ‘Elvis Lives’ and H. *plantagenia* he named two (2) seedlings - H. ‘ELP1’ and H. ‘ELP2’.

As you may have noticed, Ron combines letters and parts of names together to create the names for his hybrids. H. ‘Elvis Lives’ x ‘On Stage’ yielded H. ‘Elvis on Stage’.

Next he showed his yellow hybrids as he told their backgrounds and characteristics. H. ‘Burning Desire’ is one of the brightest yellows he’s seen. H. ‘Dripping Lemon Custard’ has elongated, curled leaf tips. H. ‘Baja Sunset’; H. ‘Wiggy Bananas’; H. ‘Yellow Needle’; H. ‘Preliminary’; and H. ‘Stand Up’.

H. ‘Oh to be Fourteen’ was originally B14 when he used its pollen, but decided to give it a name and so he thought, *“Ohhh to be 14”*. It is a yellow cupped-leaf plant with tremendous substance.

“I’ve probably put that pollen on everything I have.”

H. ‘Yellow Waver’; H. ‘Chartreuse Spoons’ has a white underside and has H. ‘Sea Gulf Stream’ in its background. H. ‘After Glow’ is from a cross of H. ‘Stand Up’ x H. ‘Atom Smasher’. The only thing he doesn’t like about it is that it turns green later. H. ‘Radiant Light’ has some streaking in the leaves.

"H. 'Dakomo'- there's a story with that name. I really like that plant, but I've never been able to show the qualities I like about it in a photograph."

Ron said, *"I like to look at flowers and buds,"* as he showed a number of pictures of flowers and flower buds that he finds attractive.

"H. 'Vipple' was named for its deep veins and ripples. Way back in its history is H. 'Darla'. H. 'Darla' is a small, little plant with folded leaves and interesting color. Not the best form in the world but it's good for a lot of other things."
H. 'Darla' is from H. 'Tiny Tears' x H. 'Rascal'.
"Who was the cutest 'Little Rascal'? It was Darla."

H. 'Darla' x H. 'Komodo Dragon' resulted in the previously mentioned H. 'Dakomo' and has 'really interesting' flowers.

One of his favorite plants is H. 'Wide Load'. H. 'Oh My God' is the stable form. Most of the plant is streaked and is called H. 'Rolled and Pleated'.

"I really like that plant, because sometimes when you're breeding streakers all the babies look the same. The diversity is tremendous (with it)."

H. 'Macho'. H. 'Whappa' is rippled, white-backed, and has very, very long leaves. The buds are 'unbelievable' because they are tightly spaced with large numbers of flowers. He's observed that masses of flowers like it has don't set seed possibly because of the large amount of flowers.
"Too much going on."

H. 'Little Red Wagon'; H. 'Tremont Spice'. H. 'Exuberant' is a cross of H. 'Breeder's Choice' x H. 'Frances Williams'. H. 'Unknown Glory' is a streaker he likes to work with. H. 'Ritz' is a cross of H. 'Spritzer' x H. 'Elegans'. He said that usually H. 'Elegans' is finished blooming before H. 'Spritzer', but he found one in bloom at a local nursery and used it to make this cross. H. 'Jiggy Wit It' is named because Will Smith's song was playing in his head one morning. H. 'Magnificent' had so much white in its leaves that it took a long time to settle out. H. 'Broad Band Ultra'; H. 'Exceptional'.

Ron was asked by garden visitors why he gave H. 'Macho' that name. He responded,
"When it gets cold out and everything else is dead, it's the last one standing."

H. 'Silver Shogun' is a very similar blue to the Stegeman's H. 'Skylight' and has purple scapes and petioles. H. 'Supererogatory' is from H. 'Ghetto Princess' streaked crossed with H. 'Komodo Dragon'. The streaked version sets seeds in heat (when other hostas don't), and he's trying to breed that trait into his other plants.

"H. 'Lido Upright' has pinched tips, white backs, red petioles, upright leaves, nice form, and pretty decent flowers"

Its name was influenced by Cheech and Chong. It was a little upright, and Ron would say,
"It's a lido upright. I like those guys, they were really funny."

Next was an unnamed H. 'Maya Kingsnake' seedling. H. 'Blue Lemonade' is a cross of H. 'Lemon Ice' x 'Blue Dogwood' that has extremely long, ruffled leaves.

"H. 'Crinkles Clink' looks like naugahide, looks like plastic. Really heavy substance, extremely crinkled, it stays crinkled up like that all the time."
It is fertile, but hasn't set a lot of seeds so far.

H. 'Marchant'. H. 'Predominant' is from the same cross as H. 'Ritz', and it was in the center of the clump. *"Why does it always have to be at the middle of the clump?"* It has a really long leaf, but he feels it's not as pretty and shapely as H. 'Blue Lemonade'.

H. 'Homespun' is from the cross of H. 'Fried Green Tomatoes' x H. 'Elvis Lives'. H. 'Prescribed' has been around for a long time and is a cross of H. 'Fried Green Tomatoes' x H. 'Silver Shogun'.

H. 'Triumphant' is named that because Ron was triumphant that after 400 crosses, he finally had a large blue hosta with a fragrant flower.

Ron said that he has seedlings growing now from crosses of ([H. 'Marilyn Monroe' x H. 'Ringtail'] x H. 'Ringtail') and ([H. 'Marilyn Monroe' x H. 'Ringtail'] x H. 'Red Neck Heaven') that make him want to check on them every day.

H. 'Arcade' is 'the one that got away'. It was a plant he really liked that didn't survive one winter. He wasn't sure if he should leave it in the ground or put it in a pot.

Regulator Genes

Going back to his original 'dog model', Ron told that Russian scientists started doing experiments with silver foxes using the non-aggressive ones in breeding.

"They'd walk by the pens and hold their hands out, and if the fox attacked, they didn't use that one. All the foxes looked the same when the experiments began, but after just a few generations, different traits started appearing. Floppy ears, different coat colors, spots, different patterns, different coat textures, curly tails. By breeding for non-aggression, that got a lot of other characteristics. They could have been breeding the foxes for hundreds of years and never have gotten a floppy ear. They discovered there's a correlation between aggression and what animals look like. By breeding for less aggression, they also were breeding for less adrenaline. Adrenaline is a really powerful hormone that works on a lot of other hormones in our bodies. So they were able to turn off and turn on certain genes like the ones for floppy ears and coat colors that are linked to adrenaline. There's a correlation between physical traits and aggression and non-aggression."

"We've been breeding hostas for a long time focusing on color, shape, size, variegation, but hostas aren't aggressive so how do you breed for non-aggression? If they were aggressive, we wouldn't have to worry about slugs."

Hormones and Hosta Flowers

"Do you think we can discover some complex relationships if we started thinking about hostas and flowers? Think about reshaping that hosta model. What if we could find a strong hormone complex in hostas? Would we discover some complex relationships between these things? I think it's worth a try."

"I started working with flowers. Where are the strongest hormones in people? The sex organs. Think about hostas. Where are the sex organs? In the flowers. So it kind of makes sense that if you start working with complex hormones in the flowers that you might unlock some of those regulator genes. When we reshape our hosta model, I think we should pay more attention to the flowers. Pay attention to how they look, how many flowers (are) on a scape, the direction they face, the patterns on the inside and the outside of the flowers, fragrance, the scape positioning, color possibilities, arrangement and placement of the pistil and stamens. I hope these will spark some ideas."

Ron showed hostas of his with interesting flowers and described some of their characteristics. H. 'Waxed Cream'; H. 'Red Dragon'. Altarra Scheer's H. 'China Girl' is a cross of her H. 'Maya Kingsnake' and Ron's 'Funny Cide'. H. 'ELP'; H. 'Tenny Up'; another seedling similar to H. 'Tenny Up' with shorter scapes; H. 'Triumphant'.

"H. 'Arten'. Remember 'B14'? This one was 'R10'. It looks like a purple magic marker was used on the outside, and it has a fused pistil and stamen, but not all have that trait."

H. 'Cosmic Blue'; H. 'Glorious'; H. 'Jiggy Wit It'; H. 'Conquistador'; H. 'Macho'; a white-flowered H. *yingeri*; H. 'Precisely'.

H. 'Tremont Spice' has a very pretty flower with white highlights; H. 'Vipple' has a dark purple flower that looks very different in different lights. The closest Ron has to a pink flower is H. 'Emo'.

Another seedling with a very pretty flower, he just calls 'pretty flower'. Its buds are purple, but the flowers look very different when they open. He showed several more flowers of unnamed seedlings, and H. 'Whoppa' buds.

Of H. 'Wild Ride', he said the plant reminds him of old wooden rollercoasters that you're afraid will fall apart before you get to the end of the ride.

Ron said that he was trying to plant some 'brain seeds' - ideas that will sit in there and if nurtured enough, will start to grow.

"When you're doing your crosses, don't just dab the pollen on, tag it, and walk away. Pay a little closer attention to what those flowers look like. They're more than just stuff to breed with. OK? Make some crosses to see what happens. 'If I cross 'A' with 'B' what happens?' Study those. Maybe at some point we need to put some collective knowledge together on flowers. And we might unlock some of those complex hormonal relationships and regulator genes. I think the more that we share, the more people that hybridize, the faster the process will move, and get us from 'Are our hostas going to the dogs?' to 'Our hostas ARE going to the dogs!'"

He closed by sharing a number of interesting and sometimes surprising dominant human characteristics such as freckles, right handedness, and six- toed dominance over five-toed.

Photographs of Ron Livingston's unique hosta creations may be viewed at these websites:

The Hosta Library
<http://hostalibrary.org/>

Fraternal Order of Seedy Fellows
<http://foosf.com/>

Art In The Lens
<http://www.artinthelens.com/>

The Way You Do

The Things You Do

Hybridizing with Don Dean

(continued from page 28)

Hosta species incorporated into breeding lines from 1998 - 2003:

H. fluctuans, *H. gracillima*, *H. hypoleuca*,
H. kikutii, *H. laevigata*, *H. longipes*,
H. montana, *H. nigrescens* 'Elatior',
H. pycnophylla, *H. ruprifraga*, *H. sieboldiana*,
a 'streaky' of *H. sieboldii* parentage,
H. tibae (to a lesser degree), & *H. yingeri*.

Asked if he's trying to keep seedlings small or maximize their growth, Don replied:

"Do not try to force. Keep it simple. Once you have multiple years worth of seedlings there are always several reaching maturity each year. Plenty to satisfy! And it is not a race. If it is, then perhaps crosses need to be made that are not the same as everyone else's. I do not wish to rush a plant and end up with it not performing as expected."



A streaked seedling in Don's garden.