This article was listed in Forest Nursery Notes, Summer 2007

30. Seed germination and survival of *Shepherdia rotundifolia, Purshia mexicana*, and *S. argentea* in three substrates. Beddes, T. and Kratsch, H. HortScience 42(4):996. 2007.

Peter Stoffella, Univ. of Florida, Fort Pierce, FL, pjs@ifas.ufl.edu
Donald Graetz, Univ. of Florida, Gainesville, FL, dag@ifas.ufl.edu

Commercial production of Chinese evergreen (*Aglaonema* spp.) cultivars in Florida started in the 1930s. Their wide-spread use as foliage plants is attributed to their ability to survive under low light interior conditions and the continuing release of attractive interspecific hybrids. To improve drainage, aeration, and sustainability of containerized diamond bay chinese evergreen (*Aglaonema* 'Diamond Bay'), seven new media were formulated and compared to a standard commercial mix (5:2:3 peat:vermiculite:perlite). Physical and chemical properties of the eight media (including two compost-based mixes) ranged from 50–65% container capacity, 2.9–7.8% air filled porosity, 54–78% moisture, 0.11–0.37 g·cm^{-3} bulk density, 0.34–0.96 g·cm^{3} particle density, 4.2–7.2 ph, 0.12–4.4 dS·m^{-1} electrical conductivity, 27.3–54.5 meg/100 g cation exchange capacity, 17.9–39.0% carbon, and 0.22–1.7% nitrogen. The medium containing 40% compost without stalite had 5.5 times more ammoniacal-nitrogen and 1.7 times more nitrate-nitrogen than the standard commercial mix. At 4 weeks, cumulative phosphorus leached from media ranged from 1.3 to 2.6 g. At 8 weeks, plants grown in two of the media containing different proportions of Canadian peat, pine bark, perlite, stalite, rice hulls or coir were 8.9% to 9.5% taller than plants grown in the standard commercial mix. At 16 weeks, there were no significant differences in plant heights or growth indices among media. Growth and leaching parameters through 24 weeks will be presented.

(396) Post-transplant Landscape Evaluation of Bedding Plants Grown in a Pine Chips Substrate

Brian Jackson*, Virginia Tech, Blacksburg, VA, jacksonb@vt.edu

Wood based materials have gained popularity in recent years as alternative substrates to peat moss and pine bark (PB) for greenhouse and nursery crop production. This study evaluates the post-transplant performance of four annual species grown in 100% ground pine chips (PC) compared to plants grown in 100% PB when fertilized at 3 different rates in the landscape. On 4 May 2006, begonia (*Begonia* × *semperflorens-cultorum* 'Cocktail Vodka'), marigold (*Tagetes erecta* 'Bonanza Yellow'), salvia (*Salvia splendens* 'Red Hot Sally'), and vinca (*Catharanthus roseus* 'Cooler Pink') plants were grown in either PC or PB. The PC substrate was prepared by further grinding coarsely ground debarked whole loblolly pine (*Pinus taeda*) logs in a hammer mill to pass a 2.38 mm screen. Pine chips were then amended with 0.6 kg·m^{-3} $CaSO_4$ and 5% (by vol) 16/30 particle size calcined clay. The PB substrate was amended with 3.5 kg·m^{-3} dolomitic lime. Plants were fertilized and irrigated similarly and greenhouse grown for one month. On 5 June 2006, twelve replications of each species grown in each substrate were transplanted into trial beds and topdressed with one of three fertilizer rates (0, 0.45, and 0.91 kg N/93 m^2) using Harrells 12–6–8 (12N–2.6P–6.7K). On 25 Aug. 2006 plants were visually rated, growth index was calculated, and shoots were collected for dry weight determination. Growth indices and visual ratings for all species were similar for PC and PB grown plants at each fertilizer rate. Shoot weights were similar for begonia and salvia grown in PC and PB at each fertilizer rate, but were lower for PC plants at the 0 and 0.45 kg rates for vinca, and the 0.91 kg rate for marigold. Therefore, bedding plants grown in PC can perform equally as well in the landscape as plants grown in PB when adequate fertilizer is applied.

(397) Seed Germination and Survival of *Shepherdia rotundifolia, Purshia mexicana,* and *S. argentea* in Three Substrates

Taun Beddes*, Utah State Univ., Logan, UT, tbeddes@yahoo.com
Heidi Kratsch, Utah State Univ., Logan, UT, heidik@ext.usu.edu

Demand for drought-adapted native plants in the West is growing, but nursery production of Intermountain West native plants often is limited by inconsistent germination of seeds. *Shepherdia rotundifolia, Purshia mexicana,* and *S. argentea* are native to arid and semi-arid regions in Utah, and they could be used in low-water managed landscapes. We evaluated germination rates in three substrates. Seeds were rinsed with distilled water and cold-stratified in the dark for 16 weeks. Stratified seeds of each species were sown into flats filled with one of three substrates: commercial germination mix, Turface™, and a locally popular native plant propagation mix (2 Sphagnum peat moss : 2 vermiculite : 1 Turface™ : 1 sand). Sixteen seeds of each species in each flat were an experimental unit, and each species-substrate combination was replicated three times. Flats were overhead-irrigated twice daily to field capacity. Germination was recorded daily from 13 Aug. to 21 Sept. 2005. *Shepherdia argentea,* a water-tolerant species, exhibited the highest overall germination rates, regardless of substrate (59%). Only *S. rotundifolia* in Turface™ exhibited comparable rates (67%). For all species, germination rates in native mix were not different from those in commercial germination mix. Our data suggest that seed germination of the drought-adapted *S. rotundifolia* and *P. mexicana* is optimized in a substrate with a balance between good drainage properties and the capacity to retain water. Because germination of *S. rotundifolia* seeds was erratic, and many ungerminated seeds remained dormant after six weeks, we are focusing on methods to break seed dormancy more efficiently and to narrow the window of germination for this species.

Specified source(s) of funding for the work presented in this abstract: Department, College, State and/or HATCH

Poster Session 37: Teaching Methods

Thursday, July 19 **12:00–12:45 pm**

(052) A Youth Community Garden as a Service Learning Project for the Capstone Course in Horticulture at Colorado State Univ.

Harrison Hughes*, Colorado State Univ., Fort Collins, CO, hghughes@lamar.colostate.edu

A local youth community garden was established by service learning students in association with the Friends Society and Irish Elementary School in Fort Collins in 2006. The intent of the garden was to provide enrichment experiences using hands on activities centered on the garden. The garden was then adopted as a service-learning project in our capstone course in Horticulture. Students in the course are given several alternatives for the service-learning project although the enrichment experiences centered on the garden is emphasized. CSU students choosing the garden project are required to prepare for a 1 hour activity that is primarily hands on. They write up an activity which features learning objectives, material requirements and how it will be presented. These are then reviewed by the class and revised as appropriate. Students are then required to present the activity to a group of fifth and sixth grade students. Activity plans have included cutting propagation, herbs, beneficial insects, seeding vegetables, planning the garden layout, composting and vermiculture as well as others. Spring planting of seeds as well as transplanting is planned. Other students in the class are planning year round activities as well as working on grants to fund CSU students to oversee and work with Boys and Girls Club students during the summer. Food grown in the garden will be shared with the students but will also be donated to the Larimer county food bank.

Specified source(s) of funding for the work presented in this abstract: Department, College, State and/or HATCH

(053) Development of Organic Tropical Fruit Crop Courses at the Univ. of Puerto Rico

J. Pablo Morales-Payan*, Univ. of Puerto Rico-Mayaguez, Mayaguez, PR, jpmorales@uprm.edu

In 2006, two courses on organic production of tropical fruit crops