Growing P/S/T talk outline

- Why?
- How?
Why Pedios/Scleros/Toumeyas?

- they are local!
- interesting forms and flowers!
- the challenge!
Notes on the plant distribution maps

• The maps are taken from Hochstätter's two recent books on Pedios and Scleros. We have copies in the library.

• The maps are fairly accurate. I have made a few changes/notes/corrections....
SECTION PEDIACACTUS HOCHSTÄTTER I

- Pediocactus simpsonii ssp. simpsonii
- Pediocactus simpsonii ssp. robustior
- Pediocactus simpsonii ssp. idahoensis
- Pediocactus simpsonii ssp. bensonii
SECTION PEDIOCACTUS HOCHSTÄTTER II

- Pediocactus nigrispinus ssp. nigrispinus
- Pediocactus nigrispinus ssp. beastonii
- Pediocactus nigrispinus ssp. indranus
Pediocactus simpsonii - Utah
Pediocactus simpsonii - Utah
Pediocactus simpsonii - Idaho
Pediocactus simpsonii - Oregon
Pediocactus simpsonii - Colorado
SECTION PEDIOCACTUS HOCHSTÄTTER III

- Pediocactus paradinei
- Pediocactus knowltonii
Ped. paradinei – Arizona
Ped. knowltonii – New Mexico
Ped. sileri – Arizona
Ped. bradyi – Arizona
Ped. winkleri – Utah
Ped. despainii – Utah
P. peeblesianus v. peeb. – NE AZ
P. peeblesianus v. fick. – N AZ
SECTION PARVIFLORI HOCHSTÄTTER I

- *Sclerocactus parviflorus ssp. parviflorus*
- *Sclerocactus parviflorus ssp. havasupaiensis* (S. havasupaiensis)
- *Sclerocactus parviflorus ssp. terrae-canyonae*
- *Sclerocactus parviflorus ssp. macrospermus*
- *Sclerocactus parviflorus ssp. variiflorus*
Scl. parviflorus v. parv – NE UT
Scl. parviflorus – NW CO
Scl. havasupaiensis – N AZ
SECTION PARVIFLORI HOCHSTÄTTER II

- Sclerocactus whipplei ssp. whipplei
- Sclerocactus whipplei ssp. busekii (Scl. sileri)
- Sclerocactus whipplei subv. azteca (Scl. cloveriae)
Scl. whipplei – SE UT & NE AZ
Scl. cloveria brackii – NW NM
Scl. sileri – N AZ
SECTION PARVIFLORI HÖCHSTÄTTER III

- Sclerocactus glaucus
- Sclerocactus wrightiae
Scl. glaucus – NW CO
Scl. mesae-verde – NW NM
Scl. wetlandicus – NE UT
SECTION SCLEROCACTUS HOCHSTÄTTER

- Sclerocactus polyancistrus
- Sclerocactus nyensis
- Sclerocactus pubispinus
- Sclerocactus spinosior ssp. spinosior
- Sclerocactus spinosior ssp. blainei
Scl. polyancistrus – Central NV
Scl. spinosior – Central UT
Scl. spinosior blainei – E NV
Scl. pubispinus  – W UT
Scl. nyensis – Central NV
Scl. nyensis – Central NV
TOUMEYA PAPYRACANTHA (ENGELMANN) BRITTON & ROSE

Toumeya papyracantha (Sclerocactus papyracanthus)
T. papyracantha – Central NM
T. papyracantha  – TX
Cultivation

- Potting soil
- Growth times/Watering schedule
- Seed germination
Potting soil mixes

- I have tried numerous mixes/recipes!
- Peat-based - 25% Metromedia 352, 25% white pumice, 50% builders sand.
- Coir based - 25% coir, 25% red pumice/scoria, 50% builders sand
- Native soil based - 25% fine mesa soil, 25% red pumice/scoria, 50% builders sand
- I like the native-soil base mix the best for almost everything!
- The common way for these plants to die is root-rot with the stem turning a nasty brown-orange.
Repotting?

- Most mixes need replaced every few years
- Why? Mineral buildup, depletion of nutrients, change in soil “structure”, *old & tired*, ….
- Repotting seems to work better in the early Spring – ~March in Abq. Early Fall is OK for vigorous plants.
- I like to remove most of the old soil by shaking, rubber mallet,…
- Check the roots and do surgery! When doing surgery, I use 10% clorox/water solution and a sharp knife.
- I let the roots dry and heal for a few days and then plant them in dry soil. I water lightly a few days to 2 weeks later depending on plant size & vigor, air temperature, season, *phase of the moon*…
Growth times/Watering schedule

- Most of these plants are Spring and Fall growers! (P. sileri is Spring only)
- Water (flood) them ~weekly when they are growing! Wait until soil is slightly damp before watering again.
- Water slightly (sprinkle) when they are not growing! During the Summer, plant dehydration with wrinkling and small ones going underground is not unusual. 30% shade-cloth helps!
- During the Spring and Fall, I use a small amount of fertilizer. In a gallon of water, I put $\frac{1}{4}$ tsp Miracle Gro 20/20/20, $\frac{1}{4}$ tsp ammonium sulfate, and 1 tsp vinegar. Note that I use a native-soil mix!
Germinating seed

- Old seed is better! 3-5 years old works well. I have germinated 20 year old seed this year.
- Treating the seed like normal cactus seed (keeping it warm and moist) results in very low (~zero) germination.
- Planting the seed in pots about Jan. 1 and letting it freeze/thaw outside for the Winter and early Spring helps!
- I plant the seed in a native soil mix, burying it about 1 seed diameter and then sprinkle gravel over the top
Germinating seed

- Germination starts in mid-Spring (April) for cold-country species (P. simp., S. spin.) and may continue through Fall. Seed may take 2-3 years to germinate, so try to not over-water and rot it.

- In the Spring, sprinkle pots daily for a 2 week period and keep them damp.

- Then, mist lightly for a few weeks and try again later. You are trying to keep the seedlings alive without rotting them as well as not rotting the ungerminated seed.

- Summer rains are great! But you may need to protect the pots from excess rain if it gets truly wet. Window-screen/shade-cloth and gravel prevent soil erosion from the rain.

- Depending on the species, age,... 1% - 80% germination rates are possible. 20% is a good goal!
Growing seedlings

- Seedlings require more water than adult plants!
- Seedlings may slow down in the summer, but do not let them dry out.
- It's easy to over-water and rot them too!
- I try to repot at about 2 years of age, sooner if the pot is packed. I like the 2.5” sq, large bottom pots for a number of reasons...
- First flowers occur at 3-4 years
Germination box
A frame with window screen fits over the top.
Seedlings
Multiple germination ages – T. pap.
Multiple germination ages – S. parv.
The scenery in P/S/T country is nice too!