

PINALENO MOUNTAINS WILD POTATO COLLECTING TRIP REPORT, Sept 17-25, 2008

Executive Summary

Participants: John Bamberg (B), Alfonso del Rio (dR), Charles (Chico) Fernandez (F)

Concept: Sky island mountain range (about 20 miles of crests) in SE Arizona has been little explored with only one sample of wild potato germplasm. More collections would reveal whether previous, limited, easy-access collections are representative of the diversity in the range. Provide new germplasm for USPG and herb specs for PTIS and local herbaria, expanding on 196 previous B et al. collections from southwest USA since 1992.

Preparations: Funding by USDA/ARS/PEO (Appendix). Permits from USFS office in Safford (Appendix). Identified about 20 likely areas to explore, by virtue of elevation, exposure, landmarks, access and 5 previously reported sites. Custom maps printed from DeLorme Topo 7; USGS, Pinaleno Mts Auto Tour brochure, Topo 7 tracks uploaded to Garmin GPS borrowed from Karen Williams, PEO. Flights to Tucson and sedan rental, drive to Safford with one-day high clearance truck rental there. Early, unusually heavy rainfalls. Not all trails maintained, difficult to get trail information, especially much time spent trying to determine best access to West Peak (details in narrative following). See "Results" section below for five previous herbarium and collection site reports.

Results: About 35 miles drivable mountain road (about 20 paved) to ridge with about 38 miles trail hiking to peaks over 7 days, with 4 nights primitive camping. Made 15 collections of *fendleri* germplasm, one from the site with previous germplasm Bamberg 9 [1994], Riggs Lake; one from previously reported site Buhrow 174 [1982], Turkey Spring. Concluded that Rothock 436 [1874], "Mt. Graham" probably refers to the whole range and not the peak by this name, per se. Could not find plants at Buhrow 173 [1982], Alder Spring = Demlong 119 [1989], S of Riggs campground. Germplasm from 13 new sites. Fruit fly damage common (see Bamberg et al., 2003. *A decade of collecting and research on wild potatoes of the southwest USA*. Am J Potato Res 80:159-172). Seeds on all collections plus all three collections made as transplants survive.

Deposit of records and materials: US Potato Genebank, 4312 Hwy 42, Sturgeon Bay, WI, 54235. 920-743-5406. john.bamberg@ars.usda.gov. GRIN website. PTIS, ARIZ.

TRIP LOG

Note: WGS minute coordinates N of 32 and W of 109 except as noted. See formal collection description details in Appendix.

Wednesday, September 17th

Fly to Tucson, drive about 125 miles to Safford FS/interagency office. Drive to town of Pima to scout Tripp Canyon road entrance.

Thursday, September 18th

To FS office to get radio and schedule escort to Turkey Spring. No Ranger available this week so return to Enterprise to rent Silverado pickup. To Pima and Tripp Canyon road (well-graded gravel). Passed Turkey Spring because landmarks and coordinates unclear, unexpectedly reached near summit of Clark Peak at 1.3 miles after road became dirt and very steep. Total about 25 miles from jct with 70 at Pima.

COLLECTION #1 -- "West Peak"

Drive back down 1.3 mile to hairpin at 44.653 x 110E 02.392', Turkey Spring. Here notice concrete springbox on E side of road and broken sign for end of 2WD road.

COLLECTION #2 -- "Turkey Spring"

Back to Pima, Rt 70 to Safford and 191 south to 266 west about 12 miles to Stockton Pass campground 35.552' x 51.179'. Up Shake Trail 309 to Trap Spring, 1.75 miles, trail jct indicating W to Alder Spring, but trail unclear. Get close to Alder Spring site according to GPS but could not find site, and daylight waning. Habitat unfavorable-- dry, rocky, open. Return to vehicle. Lodge in Safford.

Friday, September 19th

S on 191 to Swift Canyon Rd (366). Wet Canyon, 6000 ft. Moist black soil and shade along rushing stream. Looked appropriate (perhaps for *S. jamesii* at this low elevation?). Continue drive up to upper Arcadia campground, 6700 ft. Large firs and ferns, moist black soil looked quite favorable habitat. Continue drive up to Ladybug Saddle, 8500 ft. Very steep W-facing slope, gravelly soil and around boulders under large ponderosas looked very appropriate habitat. Continue to spot we name "high point", as it is at the place where the road passes across a W-pointing 8800 ft contour.

COLLECTION #3 -- "High Point"

Continue up 366 to 38.611' x 50.998'. Observe six small senescing plants, but nothing could be collected. Rich black soil and boulders in very steep SE-facing slope. To jct dirt road to Snow Flat 38.362' x 51.719'. To gravel road to Heliograph Peak and Shannon campground 39.385' x 51.597' at 9170 ft. Moist black soil under trees with needle mulch and grass. To Shannon camp. Continue to entrance road to Treasure Park at 39.884' x 52.413'. Walk around Treasure Park campground loop area, which looked like very good potato habitat. Decide to make camp at undesignated spot at top of knoll just above Treasure Park, about 100 yards W of entrance road jct at 39.835' x 52.443' with plenty of firewood, drinking water tap about 500 yards down Treasure Park loop road. Set up camp. Drive gravel 366 to Riggs Lake, scouting target sites along the way and observing robust population at exact site reported as Bamberg 9 [1994]. Road W to Clark Peak seemed too rough for the sedan. Back to camp.

Saturday, September 20th

Up 5:45 daybreak. This is Saturday and day of youth squirrel hunt sponsored by AZ Fish and Game, so much camper and hunting activity on the mountain. We have permission to access Graham Peak, but no adequate vehicle. Thus, it seemed to B that this was the day to pursue getting a ride to the peak (assumed site of Rothock 436 [1874]) by making deal with a local with 4WD. Asking about 10 campers, hunters and others claiming familiarity in the Pinalenos resulted in assertions that we: 1) were already on Graham Peak, 2) could easily drive there in a sedan or hike there in an hour or so. These people apparently 1) considered the whole Pinalenos to be Graham Peak, or 2) were confusing it with Heliograph Peak. This was unexpected, since Graham Peak should not be misunderstood, being somewhat famous as the 2nd highest peak in Arizona. Could not persuade anyone to drive us up trail 507. So decide to proceed as far W as possible on 366 and work back E toward camp.

At Riggs Flat (jct to Riggs Lake turnoff and road to Clark Peak), approach some guys camping, propose \$20 for a ride to Clark Peak (2 miles) in their 4WD pickup. Thus, F went to Riggs Lake to explore for Demlong 119 [1989] while B and dR go to Clark Peak with campers. Surprise to get to end of road in about 1.3 miles-- can this be Clark Peak? Later realized it was not. When FS said road had been extended to Clark Peak, they meant to Clark Peak campgrounds & corrals, while the peak per se is actually about ¾ mile W beyond terminus on trail 301. Drivers refused payment.

Collection #4 -- "Clark Peak N" [not really Clark Peak]

Collection #5 -- "Clark Peak S" [not really Clark Peak]

Walk back to Riggs Flat and Riggs Lake, looking along the way. Meet F, who was unsuccessful in finding potatoes at site of Demlong 119 [1989], said to be along trail 500 yards S of Riggs Lake, presumably at about 42.141' x 57.970'. Recollect Bamberg 9 at parking lot on N side of Riggs Lake.

Collection #6 -- "Riggs Lake" [re-collection]

Retrace E on 366 looking for Grandview Peak trailhead, but only marker was for Hell's Hole camp. Abandon Grandview Peak plan and proceed to Chesley Flat, about 2 miles from Riggs Lake.

Collection #7 -- "Chesley Flat"

Continue retrace E on 366, searching at Goudy Wash and Large Rocks. From Webb Peak trailhead (42.223' x 55.148') B and dR hike two miles to Webb Peak summit (10,028 ft), looked like good habitat, with burned NW exposures and large boulders. On return, note 6 small, yellowed plants right on W side of trail near hairpin at 42.425' x 55.227' and about 1/3 mile from Webb Peak trailhead. No fruit, tubers, or prospect of transplant survival, so no collection. During this time, F explored Soldier camp and Columbine camp areas without success.

Continue return E on 366 to rock wall at "Fort Grant Vista Point."

Collection #8 -- "Rock wall at Fort Grant Vista Point"

Continue return E on 366 about 0.5 mile to search at Post Creek, then another 0.7 miles to Moonshine Creek.

Collection #9 -- "Moonshine Creek"

Darkness falling so back E on 366 about 4 miles to campsite at Treasure Park.

Sunday, September 21st

Up at 5:30 AM and W on 366 back to Cunningham Campground. This is a major campground with 10 campsites, restroom and horse corral, but not shown on DeLorme map.

Collection #10 -- "Cunningham Campground"

Retrace E on 366 to "Cunningham loop" trailhead (40.795' x 53.496') very near Cunningham Campground entrance) and hiking up about 1.5 miles, elevation about 9,000 ft, habitat looked very good. About 2 miles E on 366 to Grant Hill trail loops. Here B takes western "outside" loop, not as shown on any of our maps.

Collection #11 -- "Grant Hill trail"

F and dR take eastern loop, finding nothing. Return to Safford for gas, lithium batteries, collecting boxes. Return to camp. Cover firewood with bivy sack as rain threatening. Explore Hospital Flat extensively-- looked very good, e.g., under SE-facing shade of low-slung fir branches in meadow like Moonshine Creek where potatoes are abundant. W on 366 to Grant Creek area. Return to camp 5:20 PM for 20 minutes hard rain and hail. Prospect of wet camp with no fire prompted return to Safford. Dilemma of exploring Mt. Graham caused sleepless night-- local advice contradictory and implausible... did not come prepared with good maps, but looks to be at least 8 mile hike by main access FR507... are more direct trails (from W from 366, e.g.) in good shape?... what kind of vehicle required for FR507? (Enterprise says we can use their vehicle if we have our own insurance)... should B try to hike it solo and let others make progress on other target sites?

Monday, September 22nd

Breakfast at Main Street Café. Ask waitress if she had any knowledge about Mt. Graham. Said woman behind us waiting to pay her tab works at BLM. That woman said we should talk to Bridget Blair at BLM, who does custom maps for several local Coronado NF ranger districts. Back to interagency office and ask for Bridget-- not there. Go to Enterprise and find lost USGS maps in pickup. To Starbucks, wait for an hour and call Bridget. Bring her coffee in exchange for which she custom formats and tracks a large USGS-style topo map. Measures FR507 track as 10.0 miles RT with 1600 ft gain. But, she suggests for experience advice, we should ask Chuck Duncan (Range/Watershed specialist) of FS. She calls him over from other department. Chuck seems to be in charge and knows all about the condition of local trails, giving us a mischievous grin at mention of our initial proposal to walk across the ridge on one-time packtrail from Clark to West peaks-- *not* a good idea, since there is, in fact, no trail at all there anymore (although trail still described on the FS website). Trails from 366 across Hawk peak to Graham-- no, those trails no longer exist anymore either. Shake Trail down from 366 to Adler Spring and out at Stockton Campground?-- yes, that trail is follow-able and top-

down, although a bit longer, would be preferable to walking up from bottom and back (although we later found that there is absolutely no indication of a trailhead from 366-- not even a pulloff). What about getting to Mt Graham?-- FR507 should be obvious, but why not ride up with Kolby Hawkins (Vegetation Ecologist) who has business in the area? At Chuck's request, Kolby meets us at FR507 trailhead and hauls us up to Mt Graham and back (needing to clear a few sizable downed trees from the track).

Although nothing found, the status of Mt. Graham collecting record was determined without wasting the time and energy of a 10 mile hike. The FR507 is bermed to vehicle impassibility at 41.858' x 52.386', about ½ mile from the peak. It does look like reasonably appropriate habitat at the peak around granite rocks, grass, raspberries, and occasional shade of low slung branches of small pines. GPS says 42.085' x 52.294' and 10,686 ft. at summit. There is nothing at the peak-- no "communication equipment" as claimed in *Arizona's Mountains, a hiking guide to the Grand Canyon State*. 1991. Bob and Dotty Martin, Cordillara Press, Evergreen, CO. p. 131, which must represent confusion with Heliograph Peak.

Collect ripe raspberry fruit later sent to Kim Hummer at Corvallis, Oregon *Rubus* genebank.

On way back down FR507 at rock cairn (due W of Plain View Peak) at 41.543' x 52.115' walked to "High Peak Cienga" about 500 yards to N. This spot surreal-- flat, wet with springs, green grassy steaming snowfield in afternoon sunshine from what must have been an isolated hailstorm. Looked possible habitat for potato under ponderosa and burned, fallen timbers. Arrive back at FR507 trailhead 2:30.

Back to camp for late lunch. Drive to Heliograph trailhead. Road construction in progress but open to hike. Two miles looking along roadway and B cutting through switchbacks. Summit of Heliograph ca. 10,020 ft. Buildings, generator, lookout tower and communication towers. S-facing of summit, moist black organic soil with needle mulch, herbs and grasses around E exposures of occasional large granite boulders and cliff, partial shade, stereotypic habitat. N and E-facing steep slopes of summit, rich black soil, open with large boulders with raspberries, grasses, aspens between. Habitat very reminiscent of Miller Peak of Huachucas as seen in 2005. Back to camp for snack, campfire to 10:30.

Tuesday, September 23rd

Up at 5:30, make campfire for coffee. We have finished all sites W of campsite and plan to spend the day working back up 366 from E (we had already preliminarily searched at some lower elevation campsites on Friday). To Safford for breakfast, gas up.

Cluff Dairy, 7000 ft. Ponderosas, large rocks, dry needles, few herbs, generally E-facing slopes, 38.723' x 49.026'.

Mile marker 127, at first pulloff E of where Twilight Creek passes under road, 38.168' x 49.453'. Not found at N face of large rocks 100 ft above road on steep NE facing slope and cliff with moist soil with herbs. Found only along roadside in N-facing gravel in full sun.

Collection #12 -- "Mile marker 127"

Continue about one mile to Turkey Flat vicinity, at roadside pulloff near FR180 and Trail 330.

Collection #13 -- "Mile marker 128"

About 1.2 miles up on 366 to first S-facing hairpin very near 8000 ft elevation sign.

Collection #14 -- "Hairpin loop at 8000 ft"

At about 0.6 miles below the turnoff to Snow Flat at the roadside pulloff at 9,000 ft. at sharp SW-facing hairpin. Large rocks with mulch and shade of oaks; dry.

To camp for lunch.

Back to Snow Flat, which is down $\frac{3}{4}$ mile dirt road starting about $\frac{1}{2}$ mile S of Shannon Camp access road on 366. Small lake here.

Collection #15 -- "Snow Flat"

To Shannon campground, searching extensively around campsites, slopes to E and up two creek valleys that empty into Marijida Wash from the NW; high up on fern-covered promontory ca. 400 ft above the campground.

Down 366 to scout upper Shake 309 trailhead pursuant to option of B and dR hiking down to and through Alder Spring site, coming out to Stockton Pass campground (5 miles) for pickup by F who would drive the ca. 36 miles there via 366, 191, 266. As

previously noted, there is no sign, pulloff or other indication of 309 trail access from 366. Without the exact GSP coordinates (37.358' x 49.880') there would be little hope of locating this trail. A faint track runs NW down the gravel shoulder, into the woods and parallels 366 for some 1,000 ft.-- but looks like recent horse tracks present. Trail not perfectly clear, but probably follow-able, especially with GPS track.

To Safford for supper. Return to campsite by 8 PM, in tent at 11:00 at 35F for fourth night. Sound, warm sleep all night with no aches at 5:40 rise.

Wednesday, September 24th

Break camp at 7:00 AM after coffee. Search around large boulders off S side of 366 between Treasure Park and Shannon Camp entrances. Return to "High point" collection #3 site to collect plants. Back to Safford for breakfast. Return FS map, radio and gate key to FS rep. Depart S on 191 to 266 to Stockton Pass campground and B and dR start up Shake Trail 309 at 9:50 (F remains with car to organize collections and count fruit).

Reach Shake spring at 10:24 and Alder Spring trail jct at 10:45. In better light, Alder Spring trail faint in places but easier to follow than first try on this trip. Reach dry metal stock tank at 10:55 at 36.371' x 50.472' at site and elevation of Alder Spring according to USGS-based estimate. B thought Chuck Duncan had mentioned cement springbox, but none found and trail ends here at fence. Looks possible habitat with cottonwoods and sufficient moisture in leaf mulch and organic soil but could find no potatoes. This is at Stockton Pass Wash in which runs a small stream. Bushwhacked up stream over large boulders perhaps 1,000 ft and through brush. Alder site is as per Buhrow record of 1982. Return, arriving at vehicle at 12:20.

Drive to Wilcox for lunch and Tucson to lodge.

Thursday, September 25th

Up early, pack for flights. Review trip, discuss future trips and collecting research. Fly to MSP, from which dR returns to Madison; F and B to GRB for drive in F's car to Sturgeon Bay, arriving 9:15 PM.

Trip costs: Travel claims... B = \$1386, F = \$677, dR = \$1344... total = \$3407 (supplies and time extra).

APPENDIX

IDEAS FOR SUBSEQUENT WORK AT THE SITE

Contacted Phil Jenkins at ARIZ, Tucson pursuing identity of Russ Buhrow with a view to asking exactly where he found potatoes 500 yds S of Rigg Lake and Alder Spring. Buhrow responds by email that he had no additional info on Adler Spring site, but knows of large undocumented *jamesii* population in Dragoons. Tentative plan to go there together in 2009. He also suggested earlier (August) explorations. Would be very interesting to revisit exact Pinaleno sites in August 2009 to note presentation of collectable propagules, then test for genetic parity with 2008 collections.

Explore the actual Clark Peak about $\frac{3}{4}$ mile down trail W of collections #4 and #5.

Solanum jamesii exists N and S of Pinalenos, but none found in this 2008 trip. Now that we are more familiar with the area, might an emphasis on identifying and searching habitats in the Pinalenos particularly suited for *jamesii* be productive?

Even though nothing was found at Graham Peak or High Peak Cienga, one might hike the whole ridge up 507 past Plain View, Graham, and west across Hawk peaks to more intently explore that (about 9 mile) ridge.

Robust population on West Peak led to hope that other peaks subsequently climbed (Webb, Clark, Grant, Graham, Heliograph) would be similarly productive. But this was not the case, so most collections were relatively close to road (see Topo map in Appendix). Are other robust potato populations present at off-road sites in the Pinalenos, and if so, how might West Peak habitat provide clue to their discovery?

COLLECTIONS LIST (as numbered in text)

Location Description narrative¹

1	<p>PI 655245, BdRF 163. Sept 18, 2008. <i>S. stoloniferum</i>. Arizona. Graham County. Near Safford. Coronado National Forest. Pinaleno mts. West Peak. Up Tripp Canyon Road about 25 miles from 70 jct at Pima town. At WSG N32° 44.180' x W110° 02.356' and 8,630 ft. West slope of West Peak along dirt road from access gate to buildings just below summit lookout tower. Under ponderosas, fallen branches and ferns, rich moist soil. Thousands of plants, green to yellowing up to 10 inches. Small berries common, some immature, scar of fruit fly oviposit common. Collected 133 usable fruit yielding 2,895 original seeds.</p>
2	<p>PI 655246, BdRF 164. Sept 18, 2008. <i>S. stoloniferum</i>. Arizona. Graham County. Near Safford. Coronado National Forest. Pinaleno mts. Turkey Spring, site of Buhrow 174 [1982]. Up Tripp Canyon Road about 24 miles from 70 jct at Pima town. At WSG N32° 44.653' x W110° 02.392' and 7,618 ft. Just off E road edge at base of steep west-facing slope about 50 feet from Turkey Spring concrete springbox. In rich, moist organic soil under shade of giant firs. Only one small colony of about 20 small plants with berries, scar of fruit fly oviposit common. Collected 20 usable fruit yielding 620 original seeds.</p>
3	<p>PI 655247, BdRF 165. Sept 19, 2008. <i>S. stoloniferum</i>. Arizona. Graham County. Near Safford. Coronado National Forest. Pinaleno mts. On 366 about 20.1 miles from 191 jct at pullout "high point" in roadway. At WSG N32° 37.730' x W109° 50.382' and 8,795 ft. A few dozen small faded plants just off E road edge in open gravel and taller spindly plants lower on slope under branches and shade. Collected 3 usable fruit with scar of fruit fly oviposit, yielding 98 original seeds. Returned Sept 24 to collect 6 live plants of which 4 survive.</p>
4	<p>PI 655248, BdRF 166. Sept 20, 2008. <i>S. stoloniferum</i>. Arizona. Graham County. Near Safford. Coronado National Forest. Pinaleno mts. On 366 about 33.9 miles from 191 jct and 1.3 miles beyond turnoff to Riggs Lake. Along Clark Peak trail 301 where it skirts peak just W of terminus of gravel Swift Trail. At WSG N32° 43.058' x W109° 58.732' and 8,950 ft (collected as "Clark Peak N" but peak of that name is actually ¾ mile W). Open steep NW-facing slopes in moist organic soil among scrub oak and raspberries and granite boulders. Several dozen small plants rarely with berries. Collected 10 usable fruit with scar of fruit fly oviposit, yielding 170 original seeds.</p>
5	<p>PI 655249, BdRF 167. Sept 20, 2008. <i>S. stoloniferum</i>. Arizona. Graham County. Near Safford. Coronado National Forest. Pinaleno mts. On 366 about 33.9 miles from 191 jct and 1.3 miles beyond turnoff to Riggs Lake. Along Clark Peak trail 301 where it skirts peak just W of terminus of gravel Swift Trail at WSG N32° 43.036' x W109° 58.678' and 9,038 ft (collected as "Clark Peak S" but peak of that name is actually ¾ mile W). Flats on both sides of trail that skirts S side of peak, in shade of firs in needle mulch and among granite rocks. A few dozen plants to 6" for collection of 18 usable fruit with scar of fruit fly oviposit, yielding 460 original seeds.</p>

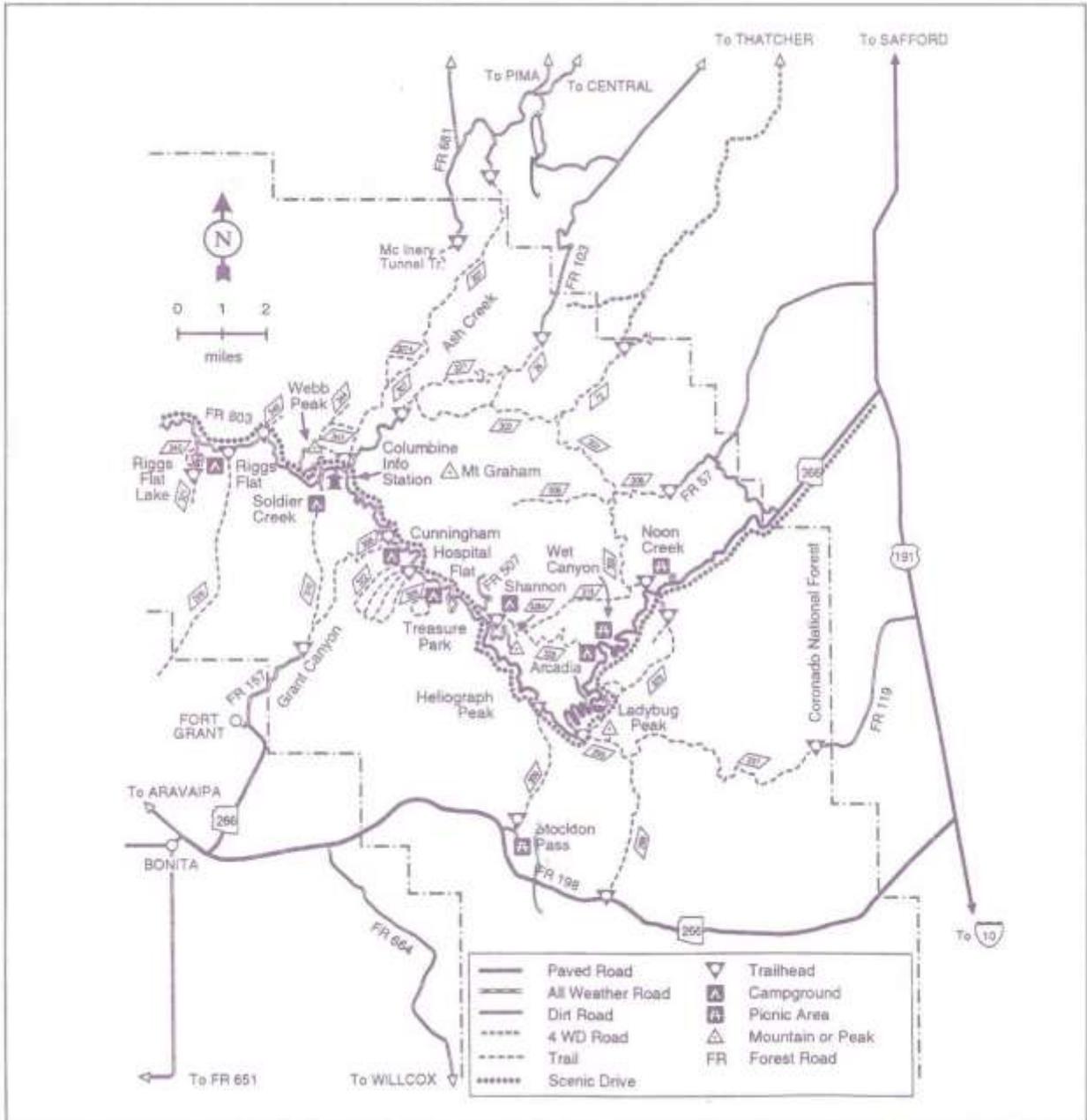
- 6 **PI 655250, BdRF 168.** Sept 20, 2008. *S. stoloniferum*. Arizona. Graham County. Near Safford. Coronado National Forest. Pinaleno mts. Riggs Lake. On 366 about 33.9 miles from 191 jct and about 0.5 miles S to Riggs Lake. Just off E side of parking lot at WSG N32° 42.517' x W109° 57.867' and 8,760 ft as re-collection of Bamberg 9 [1994]. Flat under shade in rich black soil among grass, brush and fallen branches. Abundant and to large plants, mostly spindly. Collected 35 usable fruit, commonly with scar of fruit fly oviposit, yielding 175 original seeds.
- 7 **PI 655251, BdRF 169.** Sept 20, 2008. *S. stoloniferum*. Arizona. Graham County. Near Safford. Coronado National Forest. Pinaleno mts. On 366 about 31.8 miles from 191 jct at Chesley Flat about 300 ft S of roadway at WSG N32° 42.927' x W109° 56.407' and 9,260 ft. Only one colony of small plants under shade of one small fir in flat meadow among grasses. Collected 39 usable fruit yielding 1,030 original seeds.
- 8 **PI 655252, BdRF 170.** Sept 20, 2008. *S. stoloniferum*. Arizona. Graham County. Near Safford. Coronado National Forest. Pinaleno mts. On 366 about 27.7 miles from 191 jct and about 50 yards down steep SE-facing decline below rock wall called "Fort Grant Vista Point" at WSG N32° 41.519' x W109° 54.256 and 9,300 ft. Dozens of small plants, mostly senescing, growing in needle mulch, shaded, and between and on top of large granite boulders. No fruit, so collected about 12 live plants of which 7 survive.
- 9 **PI 655253, BdRF 171.** Sept 20, 2008. *S. stoloniferum*. Arizona. Graham County. Near Safford. Coronado National Forest. Pinaleno mts. On 366 about 26.6 miles from 191 jct at Moonshine Creek, at WSG N32° 41.175 x W109° 53.723' and 8,975 ft. In gentle SE-sloping meadow below 366 in hairpin. Abundant plants, small and yellow to tall (to 10"), green and spindly depending on exposure. Some withered flowers. In grass among shade of ferns and particularly on SW-sides and under shade of low-slung branches of large firs. Fruit rare, usually with scar of fruit fly oviposit, so only 33 usable fruit collected yielding 96 original seeds.
- 10 **PI 655254, BdRF 172.** Sept 21, 2008. *S. stoloniferum*. Arizona. Graham County. Near Safford. Coronado National Forest. Pinaleno mts. On 366 about 25.8 miles from 191 jct at Cunningham Campground, at WSG N32° 40.708' x W109° 53.602' and 8,860 ft. East of horse corral and about 30 paces E of campsite #9, in rich black soil among ferns. One colony of about 10 small plants. Collected 4 usable fruit yielding 95 original seeds.
- 11 **PI 655255, BdRF 173.** Sept 21, 2008. *S. stoloniferum*. Arizona. Graham County. Near Safford. Coronado National Forest. Pinaleno mts. On 366 about 23.9 miles from 191 jct to Grant Hill trailhead, then about 2 miles around NW "outer loop" trail to about 2,000 ft SE of Grant Hill. Just off S side of trail at WSG N32° 39.623' x W109° 53.118' and 9,350 ft. E side of large granite rocks in partial shade. Small plants to 8" without berries growing in thin layer of duff right atop boulders. Only one colony of about 12 plants, 3 greenest collected of which all 3 survive.
- 12 **PI 655256, BdRF 174.** Sept 23, 2008. *S. stoloniferum*. Arizona. Graham County. Near Safford. Coronado National Forest. Pinaleno mts. On 366 about 13 miles from 191 jct at mile marker 127 near first pulloff east of where Twilight Creek passes under 366 at WSG N32° 38.150' x W109° 49.428' and 7,140 ft. In open N-facing gravelly soil of roadcut. A few small plants. Collected 2 fruit yielding 17 original seeds.
- 13 **PI 655257, BdRF 175.** Sept 23, 2008. *S. stoloniferum*. Arizona. Graham County. Near Safford. Coronado National Forest.

Pinaleno mts. At Turkey Flat, on 366 about 14 miles from 191 jct at mile marker 128 at pulloff on N side of 366 near FR180 access and 330 Trailhead at WSG N32° 37.945' x W109° 48.945' and 7,410 ft. In leaf mulch and gravel just off roadway among rocks in open to partial shade. Dozens of robust green plants to 6" with abundant mature berries. Collected 23 fruit yielding about 400 original seeds.

- 14 **PI 655258, BdRF 176.** Sept 23, 2008. *S. stoloniferum*. Arizona. Graham County. Near Safford. Coronado National Forest. Pinaleno mts. On 366 about 15.3 miles from 191 jct and inside the first SE-facing hairpin that crosses 8,000 ft at WSG N32° 37.645' x W109° 49.508' and 8,000 ft. Only one colony of about 20 tall, spindly plants in partial shade among grass and boulders in steep N-facing slope. Two small fruit collected yield 16 original seeds.
- 15 **PI 655259, BdRF 177.** Sept 23, 2008. *S. stoloniferum*. Arizona. Graham County. Near Safford. Coronado National Forest. Pinaleno mts. Snow Flat. On 366 about 21.2 miles from 191 jct then about ¾ mile down dirt road to Snow Flat campground. On E edge of road on final approach to campground at WSG N32° 39.266' x W109° 51.870' and 8,830 ft. Several groups of small plants among grass and ferns and under firs. Most small and yellow, some taller and spindly, depending on exposure, some grazed. Berries rare. Two small fruit collected yield 17 original seeds

¹ *stoloniferum* previously known as *fendleri*. BdRF = Bamberg, JB, AH del Rio and CJ Fernandez.

FS "Auto Tour" map RG-R3-05-7



FS Coronado National Forest Safford District map



PICTURES



West Peak



West Peak



Highpoint #3 roadside



#14 BdRF 176



Graham Peak lookout



Treasure Park campsite



Shake Trail 309



Treasure Park campsite



Sunset over Safford



Snow Flat



Chesley Flat



Riggs Lake



Ft. Grant Lookout



Heliograph Peak Lookout

GERMPLASM COLLECTING PROPOSAL 2008

John Bamberg, US Potato Genebank, -- revised July 21

Target species: *Solanum fendleri* and *jamesii*

Area: Pinaleno mountains around Mt. Graham, Graham Co., SE Arizona, Coronado National Forest.

Time: Mid-late Sept, 2008 (depending on local conditions)

Duration: about 10 days, total

Background: This is a key sky island that represents a gap in the center of other areas collected in recent years: Rincons in 2006 at 50 miles W, Huachucas in 2005 at 90 miles SW, Chiricahuas in 2004 at 60 miles SE and (parts of) the Gila in 2002 at 75 miles NE. There are three reports in this range, but only one *fendleri* germplasm collection in the genebank. The other attractions of this spot are: 1) there has been plenty of rain, 2) we have been welcomed here by Safford Ranger district officials, 3) it is highly accessible with standard vehicle via paved road to base camp with water at 8,700 ft., 4) area contains over 100 square miles of habitat at appropriate elevation, 5) area has extensive recreational trails and primitive roads to these likely habitats.

Objectives: Revisit and re-collect old sites (Buhrow 173, 174 [1982]), explore trails to other appropriate habitats.

Itinerary: Fly to Tucson, drive to Safford (~120 miles). Drive to Riggs Lake base camp. Backpack 9 miles W on Hurricane Pass trail to Bluejay Peak and Turkey Spring area. Also explore extensive trails accessible from 25 mile road going from 6,000 ft and along crest to lake. Explore appropriate habitats at lower altitudes for *jamesii*.

Participants (US Potato Genebank employees): John Bamberg (USDA/ARS), Charles Fernandez and Alfonso del Rio (University of Wisconsin)

Funding: Travel for 3 at ca. \$3,500 total.

Contingency plans: Original 2008 plan for Sacramento, San Mateo and Magdalena mountains in Cibolo National Forest, NM near Cloudcroft.

PREVIOUS REPORTS

[brackets indicate data B derived from sources other than original herbspec collector's record]

Buhrow	173	[Graham Co.] Pinaleno Mountains, near Alber [Alder] Spring, T9S R24E	[6720 ft]	moist ground in shade	Aug 18-20	1982
Bamberg	9	Graham County, Near Safford. On Mt. Graham at Rigg's Lake. Found only one small colony directly E of the parking lot on the N side of the lake (nowhere else around lake).	8760 ft		Sep 25	1994
Demlong	119	Graham County, Pinaleno Mountains, Riggs Flat Campground of Coronado National Forest, S-facing slope with granite boulders, 500 yards S of Riggs Lake	8600 ft	mixed coniferous forest	Aug 24	1989
Rothrock	436	[Graham County] Mt. Graham [near Safford].			Aug	1874
Buhrow	174	[Graham Co.] Pinaleno Mountains, Tripp Canyon Road near Turkey Spring	7600 ft	fairly common on moist N slope with spruce, gambels oak and box elder	Aug 18	1982

CONTACT

Kailee J Warren
Coronado National Forest, Safford Ranger district. 928-428-4150,
kwarren@fs.fed.us

PERMITS

FOREST PRODUCTS FREE USE PERMIT
PERSONAL USE ONLY (Not For Resale)
 (Ref: FSM 2400 and FSH 2409.18)
U.S. DEPARTMENT OF AGRICULTURE - FOREST SERVICE

Permit FS-2400-8 (11/2003)
 OMB No. 0596-0085
 Expires 06/31/2008

Southwestern
 Coronado
 Safford

Permittee's Name and Complete Address: Name: US POTATO - GENE BANK Address: 4312 Highway 42 City/State: Sturgeon, WI Zip Code: 54235		Permit No. 3085	Preparation Date 09/10/2008		
Permittee Identification 920-743-5406		Type Telephone Number	Effective Date 09/15/2008	Termination Date 10/15/2008	Load Ticket Numbers Thru Thru
Vehicle(s) Information Year: _____ Year: _____ Make: _____ Make: _____ Model: _____ Model: _____ Color: _____ Color: _____ License: _____ License: _____ State: _____ State: _____		Permit Area Description: Swift Trail/West Peak: Forest Entry to end of roads			
Remarks: USDA/ARS Veg Crops Research Unit					

PRODUCT DESIGNATION					
Product	Species	Unit of Measure (UCM)	Quantity	Rate Per Products (UCM)	Total Value (Free)
Non Conv.	Softwood - Other	Lbs	100.00	\$ 0.10	\$10.00
Total Permit Value:					\$ 10.00

PRODUCT QUANTITY REMOVAL RECORD											
Date	Time	Quantity Removed	Date	Time	Quantity Removed	Date	Time	Quantity Removed	Date	Time	Quantity Removed

SIGNATURES


 PERMITTEE

9/17/08
 Date


 FOREST OFFICER

9/10/08
 Date

Under the Paperwork Reduction Act of 1995, an agency shall not conduct or sponsor, and no persons are required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB number for this information collection is 0596-0085. Public reporting burden for this collection of information is estimated to average 5 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

GENERAL CONDITIONS
Subject to, and in strict compliance with, all the following conditions (both General and Other) and those listed above, the Permittee named herein is authorized to harvest and remove the forest product described above.
1. Forest products obtained under "Free Use" are for personal use only and cannot be sold or exchanged (36 CFR 261.6(f)). 2. Permit must be in the Permittee's possession while harvesting and transporting products. Copies are not allowed. 3. This permit is nontransferable. 4. This permit and activities hereunder are subject to all applicable Federal statutes and regulations and State and local laws. In case of conflict, Federal statutes and regulations shall take precedence. 5. Motorized vehicles are not allowed off existing roads that are open to the public, unless otherwise specified within this permit. Permittee parking shall not block traffic or impede fire or emergency vehicles. 6. Permittee shall remove all trash and litter resulting from Permittee's activities.



United States
Department of
Agriculture

Forest
Service

Coronado National Forest
Safford Ranger District

711 14th Ave., Suite D
Safford, Arizona 85546
Phone (928) 428-4150
FAX (928) 428-2393

File Code: 2670

Date: September 17, 2008

John Bamberg
US Potato Genebank
4312 Hwy 42
Sturgeon Bay, WI 54235-9620

John Bamberg, Alfonso del Rio, and Chico Fernandez, of the US Potato Genebank (USDA)
name *affiliation*

are authorized to enter the red squirrel refugium, to perform surveys and collect specimens of wild potato plants for research purposes. During this time, the permittees may access the refugium, the telescope access road, and Road 507. Access to Road 507 will be limited to one vehicle per day. This permit is valid only for the performance of duties necessary for the scientific research relating to wild potatoes.

This permit is valid for 9/19/08-9/23/08. This permit is no longer valid if circumstances warrant revoking the permit.

The permittee **must** carry this permit on his/her person at all times while in the red squirrel closure area.

Sincerely,

TONI L. STRAUSS
District Ranger
Safford Ranger District



Caring for the Land and Serving People

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