Supplemental data for

Debouck, D. G., Pratt, R. C., Dohle, S., Porch, T., Santaella, M., Santos, L. G. and Urban, M. O. (2025) "Novel germplasm of tepary and other *Phaseolus* bean wild relatives from dry areas of southwestern USA", *Genetic Resources*, 6(12), pp. 131–152. doi: 10.46265/genresj.LSBJ4572

Contents

Supplemental Material 1. List of Museums of Natural History and Herbaria (identified by their official acronyms: Thiers, 2023) where specimens were annotated during personal visits: see Debouck, 2021, pages 102-103; and through the Southwestern Environmental Information Network (SEINet) Portal (https://swbiodiversity.org/seinet/collections/list.php/). Updated through *Index Herbariorum* (https://sweetgum.nybg.org/science/ih/herbarium-details/), verified online March 11, 2025.

1. ASC: Deaver Herbarium, Northern Arizona University; @ASC; 11 April 2023.
2. CHRB: Chrysler Herbarium, Rutgers University; @CHRB; 16 April 2023.
3. COLO: Herbarium, University of Colorado Museum of Natural History; @COLO; 15 to 16 April 2023.
4. DES: Desert Botanical Garden Herbarium; @DES; 10 April 2023.
5. GA: University of Georgia Herbarium; @GA; 15 April 2023.
6. KANU: R.L. McGregor Herbarium, University of Kansas; @KANU; 15 to 16 April 2023.
7. KHD: Kathryn Kalmbach Herbarium, Denver Botanic Gardens; @KHD; 16 April 2023.
8. LSU: Shirley C. Tucker Herbarium, Louisiana State University, @LSU; 12 April 2023.
9. NO: Herbarium, Tulane University; @NO; 16 April 2023.
10. PH: Herbarium, Academy of Natural Sciences; @PH; 16 April 2023.
11. RENO: Herbarium, University of Nevada; @RENO; 12 to 15 April 2023.
12. RM: Rocky Mountain Herbarium, University of Wyoming; @RM; 12 April 2023.
13. SJNM: San Juan College Herbarium, San Juan College School of Science Math & Engineering; @SJNM; 11 to 15 April 2023.
14. TEUI: Herbarium, U.S. Forest Service Southwest Region, Terrestrial Ecological Unit Inventory; @TEUI; 15 April 2023.
15. UNM: UNM Herbarium, University of New Mexico; @UNM; 7 to 10 April 2023.
16. UT: Garrett Herbarium, University of Utah; @UT; 16 April 2023.

Supplemental Material 2. Detailed information about each population found (also as indicated on the labels of a voucher specimen left at Herbarium NMC).

United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius A. Gray, ident. DG Debouck, date 3/X/2024.

USA. **New Mexico**. Doña Ana, Organ Mountains, Sierra Vista Tank, 0.38 km NE from parking lot. GPS: lat. N 32º 17' 48.4", long. W 106º 36' 38.4", elev. 1565 masl (1560 m barometric). Date: October 3, 2024. A population of 20-30 plants scattered on a sunny open slope, at green pod filling stage entering maturity, a few pink lilac flowers still present. Stems up to 1 m 50 long, climbing on *Opuntia phaeacantha*. Poorly developed soil, rocky, with low organic matter, derived from diorite and other igneous rocks. About 30% of the slope without plant cover. In desert scrub with *Larrea tridentata, Dasylirion leiophyllum, Yucca elata, Fouquieria splendens, Ipomoea, Macroptilium supinum* and different grasses (namely *Muhlenbergia arizonica*).

Coll. DG Debouck, S Dohle, T Porch, R Pratt & LG Santos. No. **3406**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius A. Gray, ident. DG Debouck, date 3/X/2024.

USA. **New Mexico**. Doña Ana, Organ Mountains, Bar Canyon, cliff 0.15 km E from Soledad Canyon Road. GPS: lat. N 32º 18' 19.0", long. W 106º 35' 32.0", elev. 1740 masl (barometric). Date: October 3, 2024. A small population of less than 10 plants on a N facing cliff. Steep slope with only 40% vegetation cover. Soil rocky organic brown, derived from red brown metamorphic shale. Plants at end of flowering and green pod stage, with twining stems 40 cm high. With oak, *Yucca elata, Artemisia filifolia, Desmodium*, and different grasses, namely *Bouteloua gracilis*.

Coll. DG Debouck, S Dohle, T Porch, R Pratt & LG Santos. No. **3407**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius A. Gray, ident. DG Debouck, date 3/X/2024.

USA. **New Mexico**. Doña Ana, Organ Mountains, Bar Canyon, 1.7 km eastwards from Picnic parking lot and entrance of Bar Canyon Trail. GPS: lat. N 32º 18' 44.4", long. W 106º 34' 43.2", elev. 1859 masl (1870 m barometric). Date: October 3, 2024. A population of 20-30 plants scattered on a gentle W facing open sunny slope with big rocks of igneous origin and andesite. Soil brown

organic rocky, with 10-15% no vegetation cover. Plants with climbing stems 1-2 m long with green pods entering maturity, a few plants still flowering with eophylls and 2-3 trifoliolate leaves. Among juniper, sotol, sand sage, *Opuntia phaeacantha*, several Compositae (namely snakeweed) and grasses (*Bouteloua*).

Coll. DG Debouck, S Dohle, T Porch, R Pratt & LG Santos. No. **3408**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius A. Gray, ident. DG Debouck, date 4/X/2024.

USA. **New Mexico**. Doña Ana, Organ Mountains, Aguirre Spring Recreation Area, dry canyon 0.2 km from entrance of Pine Tree Loop Trailhead. GPS: lat. 32º 22' 08.6", long. 106º 33´ 34.7". Elevation: 1750 m (1650 m barometric). Date: 4 October 2024. Small population of about 10-20 plants scattered among big boulders and igneous rocks; goes up to 1690 m where more plants were found. The wild teparies were found at green and mature pods stage. Open sunny place, soil gravelly grey, slope of 20-30 degrees. In low height (2-3 m) chaparral of *Quercus, Yucca, Macroptilium*, and scattered grasses. It is the same environment (vegetation, soil, exposure) as for the population of the same species found last year; therefore, the same collection number was used.

Coll. DG Debouck, S Dohle, T Porch, R Pratt & LG Santos. No. **3387**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius A. Gray, ident. DG Debouck, date 4/X/2024.

USA. **New Mexico**. Doña Ana, Organ Mountains, Aguirre Spring Recreational Area, 1 km from Aguirre Springs Road walking counterclockwise on Pine Loop Trail, in Anvil Creek, 2 km north of Sugar Loaf peak. GPS: lat. N 32º 21' 50.8", long. W 106º 33' 55.5", elev. 1893 masl (1790 m barometric). Date: October 4, 2024. A small population of 10-20 plants with vines 60-120 cm long, twining, with green pods entering maturity. Half shaded E facing slope, along a creek, between large blocks of igneous rock. Soil brown rocky with organic matter, 20% bare. In a chaparral of pine, juniper and alligator oak, with *Vitis arizonica, Aster* and a few more Compositae.

Coll. DG Debouck, S Dohle, T Porch, R Pratt & LG Santos. No. **3409**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius A. Gray, ident. DG Debouck, date 5/X/2024.

USA. **New Mexico**. Doña Ana, Organ Mountains, Fillmore Canyon, 1 mi from La Cueva Picnic Area parking lot. GPS: lat. 32º 20' 16.6", long. 106º 35´ 10.7". Elevation: 1757 m (1650 m barometric). Date: 5 October 2024. A population of 10-20 plants spread along the dry bed of streamlet, in sunny spots. Plants up to 70 cm high in green and mature pod stage. Go up to 1787 masl in the same canyon. Growing between boulders and andesite rocks; soil gravelly grey brown. Associated vegetation: scrub with *Acacia, Allenrolfea, Dasylirion, Fouquieria, Opuntia, Ipomoea* and a few grasses. It is the same environment (vegetation, soil, exposure) as for the population of the same species found last year; therefore, the same collection number was used.

Coll. DG Debouck, S Dohle, T Porch, R Pratt & LG Santos. No. **3390**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius A. Gray, ident. DG Debouck, date 5/X/2024.

USA. **New Mexico**. Doña Ana, Organ Mountains, Rim route, Cuates Canyon, N of Achenbach Canyon, 1 km northeastwards from parking area along Cuates Canyon Trail. GPS: lat. N 32º 17' 33.5", long. W 106º 35' 40.2", elev. 1639 masl (1570 m barometric). Date: October 5, 2024. A population of about 40 plants, with climbing stems up to 1 m high, and with pods entering maturity. Plants scattered along a cliff of brown metamorphic rock. Soil brown grey gravelly and rocky. Among *Opuntia, Yucca*, ocotillo, little-leaf sumac, *Ipomoea*, and several grasses (*Bouteloua*) in an almost tree-less environment (only a few small oaks); a group of *P. filiformis* # 3411 has been found within 100 m.

Coll. DG Debouck, S Dohle, T Porch, R Pratt & LG Santos. No. **3410**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus filiformis Bentham, ident. DG Debouck, date 5/X/2024.

USA. **New Mexico**. Doña Ana, Organ Mountains, Rim route, Cuates Canyon, N of Achenbach Canyon, about 1 km northeastwards from parking area along Cuates Canyon Trail. GPS: lat. N 32º 17' 34.0", long. W 106º 35' 39.1", elev. 1647 masl (1570 m barometric). Date: October 5, 2024. A population of about 10-20 plants spread across rocks of andesite, found on the site of population #3410 of *Phaseolus acutifolius* Asa Gray. Plants 30-50 cm high with pods entering maturity and seed dispersal stage. Place: open sunny. Scattered between blocks of andesite rock. Soil gravelly rocky grey brown. In a chaparral, among *Yucca, Opuntia*, sand sage and ocotillo.

Coll. DG Debouck, S Dohle, T Porch, R Pratt & LG Santos. No. **3411**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius A. Gray, ident. DG Debouck, date 6/X/2024.

USA. **New Mexico**. Doña Ana, Aden Lava Flow Wilderness Study area, SE of Aden, 1 km S from Old Johnston Ranch. Unmarked dirt road, intersects B-002 0.7 km south east of County Road B-007, then continues for 4.5 km southwest into lava flow. Collection site 0.39 to 0.7 km SW of end of unmarked dirt road. GPS: lat. N 32º 02' 18.8", long. W 106º 57' 23.0", elev. 1288 masl (1210 m barometric). Date: October 6, 2024. A population of 30-40 plants, with 1 m - 1 m 50 climbing stems, at green and mature pod stage, a few pink lilac flowers still present. Plants scattered in deep crevices of the lava flow bed and between blocks of almost black lava; growing into holes, protected from drying winds and cattle grazing. Soil light brown silty and rocky with little organic matter. In a scrub on soil mostly bare, with scattered barrel cactus, *Opuntia* cholla, honey mesquite, catclaw *Acacia* and *Yucca elata*.

Coll. DG Debouck, S Dohle, T Porch, R Pratt & LG Santos. No. **3412**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius A. Gray, ident. DG Debouck, date 7/X/2024.

USA. **Arizona.** Cochise, Chiricahua Mountains SW of Portal, in Onion Saddle Cave Creek 0.49 km NW from Southwestern Research Station. GPS: lat. N 31º 53' 13.6", long. W 109º 12' 30.6", elev. 1663 masl (1580 m barometric). Date: October 7, 2024. A population of 40 plants at pod maturity, although a few green pods are still present, scattered in the dry creek bed. Stems twining on forbs 60-80 cm high. Plants of *P. montanus* #3414 grow a few meters from this #3413. Soil rocky and gravelly derived from igneous rocks, light brown organic; 30% soil bare. In pine juniper woodland half shaded with grasses (*Bouteloua*), *Desmodium* and *Macroptilium rotundifolium*. *Agave* and *Vitis arizonica* have been seen growing in the area.

Coll. DG Debouck, S Dohle, T Porch, R Pratt, E Riordan & LG Santos. No. **3413**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus montanus Brandegee, ident. DG Debouck, date 7/X/2024.

USA. **Arizona.** Cochise, Chiricahua Mountains SW of Portal, in Onion Saddle Cave Creek 0.49 km NW from Southwestern Research Station. GPS: lat. N 31º 53' 13.6", long. W 109º 12' 30.6", elev. 1663 masl (1580 m barometric). Date: October 7, 2024. A population of 20 plants at green

and mature pod stage, distributed as spots in the dry creek bed, in sunny open places. Stems twining on forbs, 20-40 cm high. Plants of *P. acutifolius* #3413 grow a few meters from this #3414. Soil rocky and gravelly derived from igneous rocks, light brown organic; 30% soil bare. In pine juniper woodland with grasses (*Bouteloua*), *Desmodium* and *Macroptilium rotundifolium*. *Agave* and *Vitis arizonica* have been seen growing in the area.

Coll. DG Debouck, S Dohle, T Porch, R Pratt, E Riordan & LG Santos. No. **3414**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus grayanus Wooton & Standley, ident. DG Debouck, date 7/X/2024.

USA. **Arizona.** Cochise, Chiricahua Mountains, about 4 km SW of Paradise, in East Turkey Creek at intersection of 42 Forest Road (Onion Saddle Cave Creek) and Paradise Road (Paradise Portal Loop). GPS: lat. N 31º 54' 33.2", long. W 109º 15' 09.3", elev. 1967 masl (1880 m barometric). Date: October 7, 2024. About five plants on a slope of a little forest creek. Stems twining 1 m 20 high with dried leaflets and mature pods at seed dispersal stage. On side of big andesite rocks, soil rocky brown organic. In pine forest with *Juniperus*, a few boxelder, *Vitis arizonica* and poison ivy.

Coll. DG Debouck, S Dohle, T Porch, R Pratt, E Riordan & LG Santos. No. **3415**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus montanus Brandegee, ident. DG Debouck, date 7/X/2024.

USA. **Arizona.** Cochise, Chiricahua Mountains, about 4 km SW of Paradise, in East Turkey Creek at intersection of 42 Forest Road (Onion Saddle Cave Creek) and Paradise Road (Paradise Portal Loop). GPS: lat. N 31º 54' 33.1", long. W 109º 15' 09.7", elev. 1964 masl (1890 m barometric). Date: October 7, 2024. Small population of about ten plants on a slope of a little forest creek. Stems twining 40 cm high, at pod maturity, one plant still blooming. Soil rocky brown organic on igneous rock. In pine forest with a few *Quercus* and poison ivy.

Coll. DG Debouck, S Dohle, T Porch, R Pratt, E Riordan & LG Santos. No. **3416**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus montanus Brandegee, ident. DG Debouck, date 7/X/2024.

USA. **Arizona.** Cochise, Chiricahua Mountains W of Portal, along Paradise Road (Paradise Portal Loop) to Paradise where it crosses East Turkey Creek just south of Paradise, about 1.2 km from bifurcation of South Turkey Creek Road (also called S Noland Rd. or Market St.) and Paradise Portal Loop (also called Paradise Road). GPS: lat. N 31º 55' 44.6", long. W 109º 13' 10.4", elev. 1693 masl (1630 m barometric). Date: October 7, 2024. Small population of 10-20 plants on a sunny open steep roadside slope. In green pod stage, entering maturity. Soil mostly bare, brown grey gravelly derived from andesite and quartzite rock. In oak juniper woodland, with a few grasses (*Bouteloua*), *Crotalaria, Desmodium*; *P. acutifolius* # 3418 grows nearby.

Coll. DG Debouck, S Dohle, T Porch, R Pratt, E Riordan & LG Santos. No. **3417**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius Asa Gray, ident. DG Debouck, date 7/X/2024.

USA. **Arizona.** Cochise, Chiricahua Mountains W of Portal, along Paradise Road (Paradise Portal Loop) to Paradise where it crosses East Turkey Creek just south of Paradise, about 1.2 km from bifurcation of South Turkey Creek Road (also called S Noland Road or Market Street) and Paradise Portal Loop (also called Paradise Road). GPS: lat. N 31º 55' 44.6", long. W 109º 13' 10.4", elev. 1693 masl (1630 m barometric). Date: October 7, 2024. Small population of 10-20 plants on a steep roadside slope, sunny open habitat. In green pod stage, entering maturity. Soil mostly bare, brown grey gravelly derived from andesite and quartzite rock. In oak juniper woodland, with a few grasses (*Bouteloua*), *Crotalaria, Desmodium*; *P. montanus* # 3417 grows nearby.

Coll. DG Debouck, S Dohle, T Porch, R Pratt, E Riordan & LG Santos. No. **3418**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus maculatus Scheele, ident. DG Debouck, date 8/X/2024.

USA. **New Mexico.** Grant, northwest side of Red Rock Rd 3.4 km west of Red Rock – Continental Divide Trailhead. GPS: lat. N 32º 39' 08.3", long. W 108º 31' 56.2", elev. 1781 masl (1710 m barometric). Date: October 8, 2024. A small population of 5-20 plants, scattered on a steep roadside slope and cliff of granite and quartzite, sunny open habitat. Very few dry pods, stems up to 80 cm long sprawling on slope with green and dried leaflets. Soil 70% bare, grey tan rocky. In oak pine woodland, with a few grasses (*Bouteloua*) and *Vitis arizonica*.

Coll. DG Debouck, S Dohle, T Porch, R Pratt & LG Santos. No. **3419**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius Asa Gray, ident. DG Debouck, date 8/X/2024.

USA. **New Mexico.** Grant, in narrow arroyo south of Red Rock Rd 3.4 km west of Red Rock – Continental Divide Trailhead. GPS: lat. N 32º 39' 01.3", long. W 108º 31' 56.8", elev. 1790 masl (1720 m barometric). Date: October 8, 2024. A small population of 20 plants, scattered in a little creek and sheltered among big granite rocks. In oak and juniper woodland with *Yucca*, some Mimosoideae, *Opuntia cholla*, and *Boutelous curtipendula*? Shady habitat. Soil brown organic gravelly. Stems climbing 50-70 cm high, dried, pods at seed dispersal stage.

Coll. DG Debouck, S Dohle, T Porch, R Pratt & LG Santos. No. **3420**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius Asa Gray, ident. DG Debouck, date 8/X/2024.

USA. **New Mexico.** Grant, 2.3 km westwards from intersection of Road 180 with Saddle Rock Road. GPS: lat. N 32º 47' 17.8", long. W 108º 29' 38.2", elev. 1518 masl (1470 m barometric). Date: October 8, 2024. A small population of 10-20 plants, scattered on a cliff of big diorite rocks. Open sunny slope. Soil gravelly rocky tan grey. With pine, oak, manzanita, catclaw acacia, *Bouteloua* grass, amaranth and Compositae. Stems twining 30-50 cm high, already dried and with pod shattering. Too late for herbarium specimens.

Coll. DG Debouck, S Dohle, T Porch, R Pratt & LG Santos. No. **3421**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius Asa Gray, ident. DG Debouck, date 8/X/2024.

USA. **New Mexico.** Grant, along Newby Road along the Gila River, 1.3 km southwest from where the road crosses Mangas Creek, 2.8 km from the Newby Road and Evans Lake Road intersection. GPS: lat. N 32º 51' 04.8", long. W 108º 35' 26.02", elev. 1327 masl (1310 m barometric). Date: October 8, 2024. A population of 30 plants, growing at base of andesite cliff, W facing slope. Stems twining 30-40 cm high, at green pod stage, several pods already mature. Soil rocky grey, 70% bare. Juniper grassland with scattered forbs of Compositae, a few *Desmodium* plants and a few grasses.

Coll. DG Debouck, S Dohle, T Porch, R Pratt & LG Santos. No. **3422**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius Asa Gray, ident. DG Debouck, date 9/X/2024.

USA. **New Mexico.** Grant, along Turkey Creek Road in Brushy Canyon between 0.5 km and 1.8 km south of where Brushy Canyon meets the Gila River. GPS: lat. N 33º 02' 59.0", long. W 108º 30' 03.4", elev. 1535 masl (1480 m barometric). Date: October 9, 2024. A population of 10 plants growing at base of cliff and along dirt road side going down to 1430 m, in open sunny habitat. Plants at green pod stage entering maturity. Soil derived from andesite rocky brown grey, bare up to 70%. In pine juniper forest with *Quercus*, a few *Populus*, scattered grasses, a few Compositae and *Crotalaria*.

Coll. DG Debouck, S Dohle, T Porch, R Pratt & LG Santos. No. **3423**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus angustissimus Asa Gray, ident. DG Debouck, date 9/X/2024.

USA. **New Mexico.** Grant, on Hooker Loop 0.4 km from intersection with Turkey Creek Road east of the town of Gila. GPS: lat. N 32º 57' 57.6", long. W 108º 33' 48.2", elev. 1412 masl (1350 m barometric). Date: October 9, 2024. A population of 20-30 plants growing in gulleys on roadside. Plants with reddish sprawling vines up to 1 m long, at green pod stage, some mature pods, still some flowers (deep pink lavender). Green seeds eaten by rodents. Grazed land, 40% soil bare. Soil brown silty and stony derived from old alluvium. Open and sunny habitat. In flat land or gentle slopes in a juniper grassland with Compositae.

Coll. DG Debouck, S Dohle, T Porch, R Pratt & LG Santos. No. **3424**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus maculatus Scheele, ident. DG Debouck, date 10/X/2024.

USA. **New Mexico.** Grant, along Road 15, 2.9 km NW from Pinos Altos, 1.3 km NW of the Continental Divide Trail and 250 m south from Little Cherry Lane. GPS: lat. N 32º 53' 32.7", long. W 108º 14' 06.4", elev. 1991 masl (1890 m barometric). Date: October 10, 2024. A small population of less than 5 plants growing in flat land or gentle slope. Stems sprawling on ground, 60 cm long, with green pods, some entering maturity, pods slightly dehiscent, many dried leaflets already. Half shade, the plants of *P. maculatus* in open spots. Soil deep brown derived from andesite substrate with abundant organic matter. In pine woodland with a few oaks and junipers, grasses and a few forbs such as *Geranium*, *Galactia*, a few Compositae.

Coll. DG Debouck, S Dohle, R Pratt & LG Santos. No. **3425**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus grayanus Wooton & Standley, ident. DG Debouck, date 10/X/2024.

USA. **New Mexico.** Grant, along Road 15 near Copperas Vista and around Picnic area Senator Linton P. Anderson Wilderness. GPS: lat. N 33º 07' 1.3", long. W 108º 11' 57.5", elev. 2248 masl (2120 m barometric). Date: October 10, 2024. A population of about 30 plants growing in flat land and on gentle to steep slopes. Stems rather sprawling on ground 60-80 cm long, with green and yellow leaflets, green pods entering maturity, some damaged by weevils. Sandstone outcrop, soil 70% bare light brown clayish organic. Scattered on slope, open sunny to partial shade below oaks. In pine woodland with grasses, Compositae, and *Macroptilium rotundifolium*.

Coll. DG Debouck, S Dohle, R Pratt & LG Santos. No. **3426**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus maculatus Scheele, ident. DG Debouck, date 10/X/2024.

USA. **New Mexico.** Catron, Gila Cliff Dwellings and inside Gila Cliff Dwellings National Monument. GPS: lat. N 33º 13' 46.2", long. W 108º 15' 52.3", elev. 1744 masl (1650 m barometric). Date: October 10, 2024. A population of 20-30 plants with stems sprawling on a cliff (sandstone with metamorphic rock). Stems sprawling 1-2 m long at pod maturity, leaflets green to pale yellow, many already dried; seeds (tan with black speckles or anthracite black with tan speckles) with damages of weevils. Soil rocky grey brown, good to excessive drainage. Open sunny habitat. In juniper and pine grassland with a few grasses and Compositae (*Aster*).

Coll. DG Debouck, S Dohle, R Pratt & LG Santos. No. **3427**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius Asa Gray, ident. DG Debouck, date 10/X/2024.

USA. **New Mexico.** Catron, Gila Cliff Dwellings National Monument, on the slope before the Caves. GPS: lat. N 33º 13' 35.9", long. W 108º 16' 11.5", elev. 1795 masl (1700 m barometric). Date: October 10, 2024. A population of 20 plants scattered on the slope, open sunny habitat. Stems climbing 40-60 cm high, some already completely dry, at pod shattering stage. Some plants of *P. maculatus* completely dried were found nearby; a few plants of *P. grayanus* (not collected because

vegetative only) were noted in the shade along the streamlet facing the Caves. On sandstone rock substrate, 20% soil bare, dry, brown grey rocky with organic matter. Chaparral like vegetation with oaks, some pines, different grasses (namely *Bouteloua curtipendula*) and Compositae.

Coll. DG Debouck, S Dohle, R Pratt & LG Santos. No. **3428**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius Asa Gray, ident. DG Debouck, date 10/X/2024.

USA. **New Mexico.** Grant, along Road 15, near Grapevine Campground, 125 m south from bridge over Gila River and 0.5 km from start of Gila River Trail no. 724. GPS: lat. N 33º 10’ 45.0”, long. W 108º 12’ 19.2”, elev. 1698 masl (1630 m barometric). Date: October 10, 2024. A small population of 10 plants at base of cliff (metamorphic sandstone) and on roadside. Plants with climbing stems 60 cm high in green pod stage. Soil 50% bare, rocky organic. In pine woodland, with Compositae, *Geranium, Desmodium*; several plants of *Vitis arizonica* and wild sunflower grow close by.

Coll. DG Debouck, S Dohle, R Pratt & LG Santos. No. **3429**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius Asa Gray, ident. DG Debouck, date 11/X/2024.

USA. **Arizona.** Greenlee, creek crossing (Seep Spring Canyon) Martinez Ranch Road 1.1 km from intersection with Road 78; more plants found further along road, 1.7 km from intersection with Road 78, 280 m west of Big Lue Spring. GPS: lat. N 33º 05’ 16.6”, long. W 109º 05’ 21.8”, elev. 1827 masl (1720 m barometric) up to 1867 m (1750 m barometric). Date: October 11, 2024. A small population of 5-10 plants at green pod stage. Plants with very narrow leaflets, climbing stems 20-60 cm high. On igneous rock, soil 40% bare, brown rocky, organic. Half shaded, on both sides of creek, its depth protecting from winds. In mixed woodland of pine, oak, juniper, recovering from a fire. With scattered grasses, *Vitis arizonica*, several species of *Galactia*.

Coll. DG Debouck, S Dohle, R Pratt & LG Santos. No. **3430**.

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United States Department of Agriculture, Agricultural Research Service, Pullman, WA; New Mexico State University, Las Cruces, NM, USA; International Center for Tropical Agriculture, Palmira, Colombia.

Phaseolus acutifolius Asa Gray, ident. DG Debouck, date 11/X/2024.

USA. **New Mexico.** Grant, in creek crossing just east Brushy Mountain Road in Blue Siar Well, about 24 km from intersection with Road 78 in Mule Creek, 4.4 km past the intersection with Radar Station Road, 1.4 km south east past the Apache Creek crossing. GPS: lat. N 32º 57' 04.6", long. W 108º 57' 35.8", elev. 1918 masl (1820 m barometric). Date: October 11, 2024. A population of 40 plants distributed in the dry wash, between rocks (eruptive and black old lava). Plants with climbing stems 20-40 cm high, at seed dispersal stage. Soil 70% bare rocky gravelly brown organic. In chaparral habitat with oaks, junipers, *Opuntia, Cylindropuntia, Agave, Macroptilium rotundifolium*, and scattered grasses (namely *Bouteloua gracilis*).

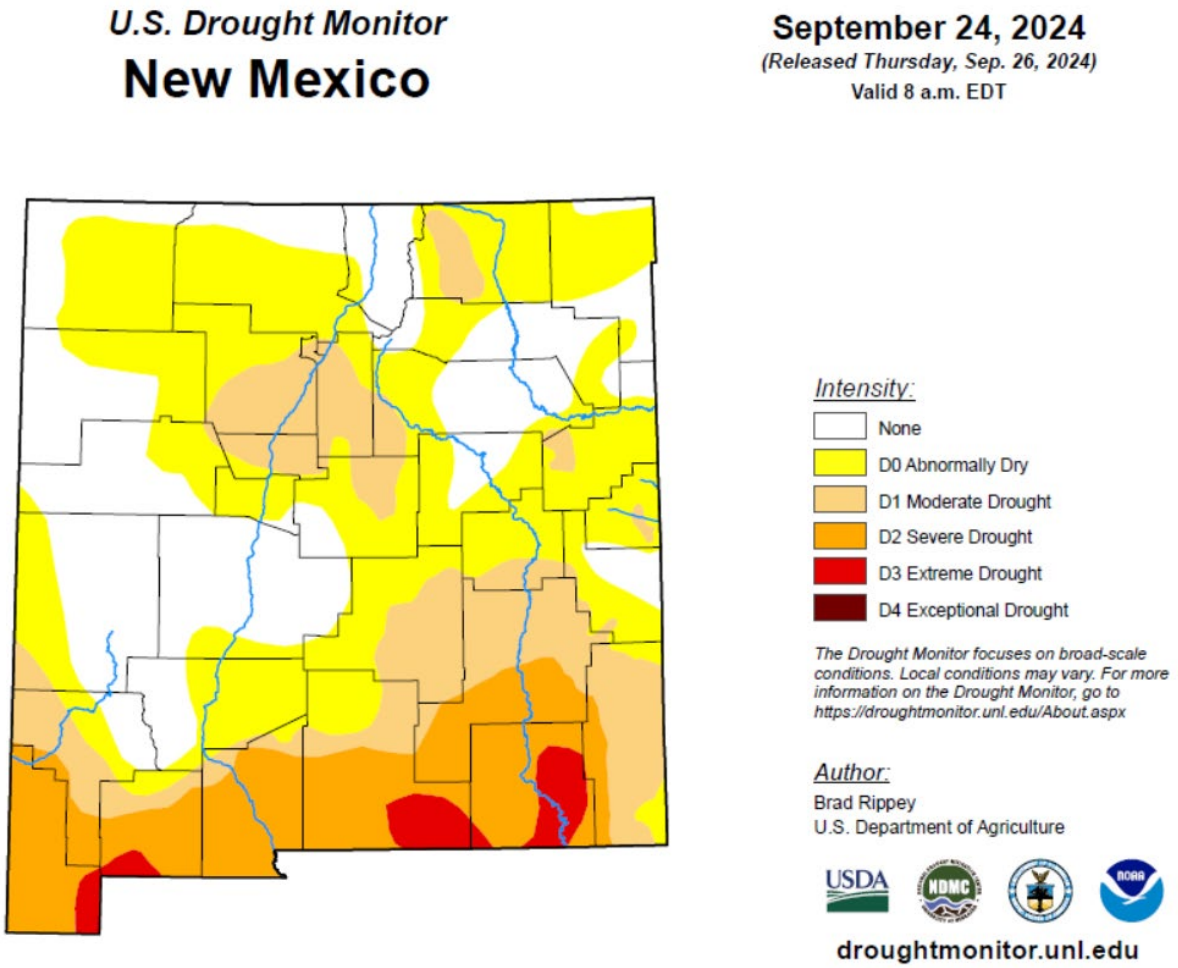
Coll. DG Debouck, S Dohle, R Pratt & LG Santos. No. **3431**.

Supplemental Table 1. Numbers of *Phaseolus* populations by species (verified) and by county of New Mexico obtained from the study of 102 Herbaria in 1978 – early 2023.

Counties	*acutifolius*	*angustissimus*	*filiformis*	*grayanus*	*maculatus*	*parvulus*	Total
Hidalgo	13			9	3		25
Luna	6	7	6		1		20
Doña Ana	7	13	3	1	1		25
Eddy				2			2
Grant	3	5		13	17	3	41
Sierra		2		1	4	1	8
Catron		23		10	13	3	49
Socorro		4		1	1		6
Cibola		2					2
Bernalillo		1					1
Valencia		2					2
McKinley		2					2
Sandoval		2					2
Los Alamos		1					1
Rio Arriba		3					3
Total	29	67	9	37	40	7	189

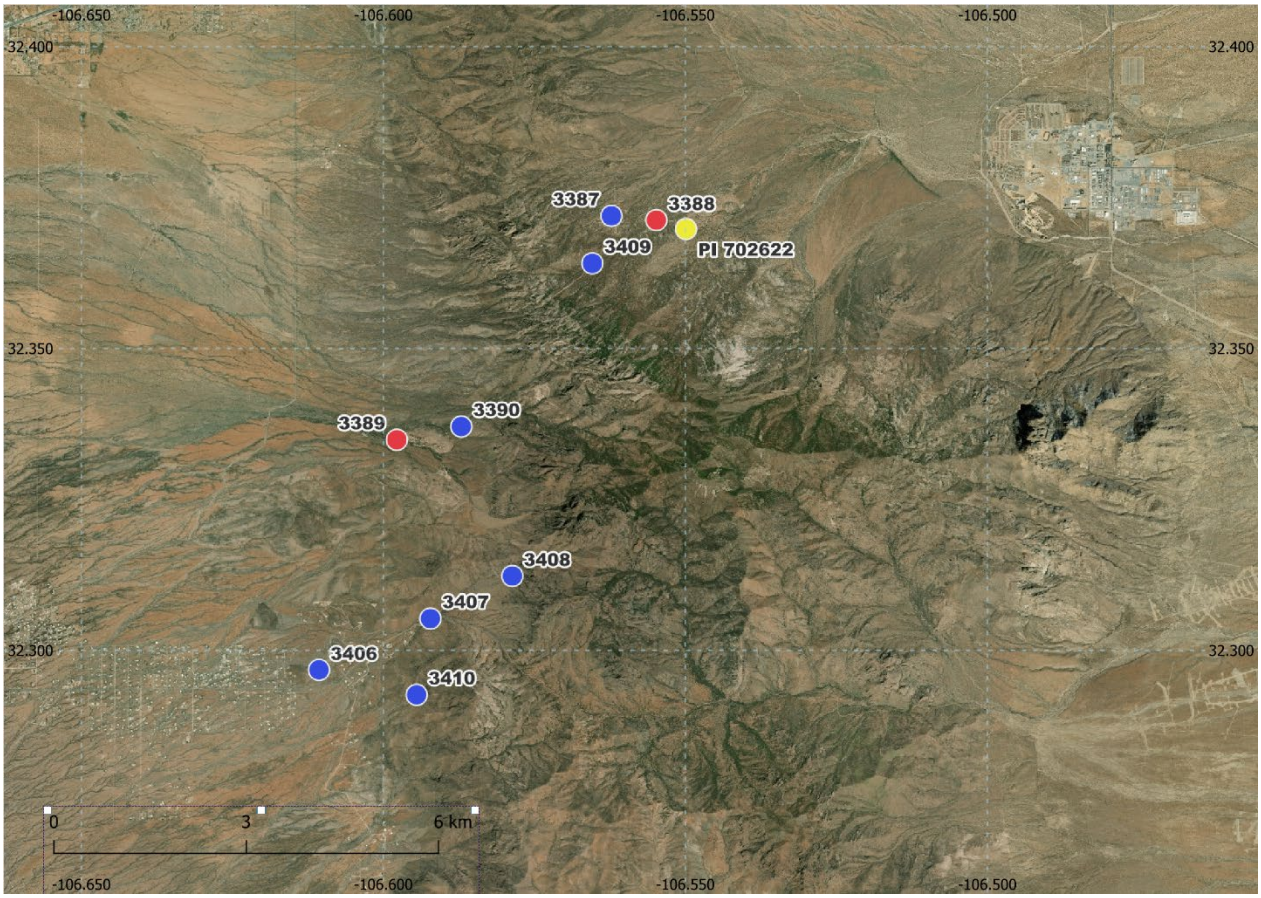
Supplemental Table 2. Results about the collection of seed, herbarium specimens and nodules/ soil samples of the immediate rhizosphere for the different *Phaseolus* populations found during the 2024 exploration.

Collection No.	Species	Seed	Herbarium	Nodules	Soil
3406	*acutifolius*	yes	3	yes	no
3407	*acutifolius*	too green and small	1	no	no
3408	*acutifolius*	yes	3	yes	no
3387	*acutifolius*	yes	1	yes	no
3409	*acutifolius*	yes	4	no	no
3390	*acutifolius*	yes	1	no	yes
3410	*acutifolius*	yes	4	no	yes
3411	*filiformis*	yes	6	no	yes
3412	*acutifolius*	yes	5	no	yes
3413	*acutifolius*	yes	4	no	yes
3414	*montanus*	yes	8	yes	yes
3415	*grayanus*	yes	4	no	yes
3416	*montanus*	yes	1	yes	yes
3417	*montanus*	yes	2	yes	yes
3418	*acutifolius*	yes	4	yes	no
3419	*maculatus*	1 seed only	4	no	yes
3420	*acutifolius*	yes	none (too dry)	no	yes
3421	*acutifolius*	yes	none (too dry)	yes	yes
3422	*acutifolius*	yes	6	yes	yes
3423	*acutifolius*	yes	5	yes	yes
3424	*angustissimus*	yes	6	no	yes
3425	*maculatus*	yes	4	no	yes
3426	*grayanus*	yes	5	no	yes
3427	*maculatus*	yes	5	no	yes
3428	*acutifolius*	yes	3	no	yes
3429	*acutifolius*	yes	4	no	yes
3430	*acutifolius*	yes	2	yes	yes
3431	*acutifolius*	yes	1	yes	yes



Supplemental Figure 1. Map of New Mexico indicating drought prediction as compared to moisture expected across that state at that date and downloaded on September 30, 2024. On the base of this map and the numerous scouting visits during August and early September 2024, the team decided to undertake the germplasm exploration for wild teparies and other wild bean species. Note the near normal moisture level in the Gila region and the critical situation in all southern counties.

Supplemental Figure 2. Photographs of *Phaseolus* seedlings during the seed increase process at USDA Pullman. Top row: overview with *P. filiformis*, population #3411. Lower row: *P. acutifolius*: population #3390 (left) and population #3422 (right), showing the leaflet variation. (all photographs by SD, on March 13, 2025; all three collections planted on January 16, 2025).



Supplemental Figure 3. Satellite map of the Organ Mountains showing the progress of sampling of wild tepary populations. Yellow dot: population sampled by R. Pratt in 2017. Red dots: populations found in 2023 and re-sampled for seed in 2024. Blue dots populations sampled for seed in 2024. The town of Las Cruces is to the left of this photograph, while the White Sands Missile Range area (restricted public access) is to the right.