

**GIANT SANDBUR (*CENCHRUS PALMERI*, POACEAE)
NEW FOR ARIZONA AND THE UNITED STATES**

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ABSTRACT

Cenchrus palmeri from Yuma County, Arizona, is documented as new for the flora of the USA. It is one five of species of grasses endemic to the Sonoran Desert.

KEY WORDS: *Cenchrus palmeri*, Marine Corps Air Station, Yuma County, Arizona, first USA record, Poaceae

Cenchrus palmeri Vasey has not previously been recorded as a member of the USA flora. Felger (2000) suggested that it should be sought in natural areas on sandy soils in the southwestern Arizona border region along the southern border in Cabeza Prieta National Wildlife Reserve and the Tinajas Altas region. On 5 January 2013, Jim Malusa and Abigail Rosenberg found a single specimen between the Tinajas Altas Mountains and the Yuma dunes, about five miles north of the international border (Fig. 1). It was photographed (Fig. 2) but not collected. Two weeks later, a population of 500–1000 plants was discovered by Malusa and Pete Sundt at a location about 1.5 miles further northeast and about 6 miles from the international border; the collections below were made from this locale (Figs. 3-5). In July of 2013, from the same location, Karen Reichhardt identified specimens found by Del Maslen, a range warden for Marine Corps Air Station, Yuma. We predict that *C. palmeri* will expand its range in southwestern Arizona during years with favorable rains, such as the summer rains of 2013.

Vouchers. USA. Arizona. Yuma Co.: Barry M. Goldwater Range, Marine Corps Air Station-Yuma, Hazard Area 4 (Figure 1):

(1) ca. 3 mi NW of the target known as Yodaville (Quad: West of Vopoki Ridge), and 12 mi S of Foothills community in Yuma, Arizona; UTM Zone 11, WGS 84, 7 46 608 E, 35 94 308 N, WGS 1984, 130 m; along roadside at observation tower, and in nearby runnels; sandy flats; associated species: *Larrea tridentata*, *Palafoxia arida*, *Dalea mollis*, *Brassica tournefortii*; population estimated at 500–1000 plants, 19 Jan 2013, J. Malusa & P. Sundt s.n.(2 sheets, ARIZ 413972 & 413973).

(2) ca. 3 mi NW of the target known as Yodaville (Quad: West of Vopoki Ridge), and 12 mi S of Foothills community in Yuma, Arizona; near observation tower behind a fence with evidence that illegal aliens on foot from Mexico hide and stage; tower is reached via paved road; sandy soil, relatively flat mesa terrain with *Larrea tridentata*; UTM Zone 11, WGS 84, 7 46 604 E, 35 94 317 N, +- 11ft, with Garmin GPS 60

CSX, 11 July 2013, *D. Maslen s.n.* (Bureau of Land Management Yuma Field Office Herbarium, and ARIZ 415466).

(3) 11 mi S of Foothills area of Yuma, Arizona on MCAS-Yuma Barry M. Goldwater Range; found growing on both sides of the road 1 mi N of first USA collection locality (Malusa & Sundt, 19 Jan 2013); sandy soil; UTM Zone 11, WGS 84 11S 07 45 790 E, 35 95 957 N, 4 Sep 2013, *D. Maslen s.n.* (Bureau of Land Management Yuma Field Office Herbarium, and ARIZ 415467).



Figure 1. Location of *Cenchrus palmeri* in Arizona.

Cenchrus palmeri is a non-seasonal annual (ephemeral) growing and reproductive with ample rains, and perishing with winter freezing. It is highly variable in size, often (5) 8–30 cm long, with small, weakly developed roots. The burs, 1–3 per inflorescence, with a body 20–31 mm in diameter, have sharp, rigid spines (6) 9–15 mm long. The burs, the largest of any species of *Cenchrus*, persist long after the plant dies, often half hidden in the sand. (Figs. 2-5).

This unique grass occurs on sandy or silty soils as well as rocky slopes. Gould and Moran (1981: 123) pointed out that “This readily recognizable sandbur is one of the most distinct of the genus and is one of the very few grasses endemic to the Sonoran Desert.” However, it also ranges somewhat south of the desert along the coast to northwestern Sinaloa (Felger 2000). It is known from both states of Baja California, most islands in the Gulf of California, western Sonora northward to the Pinacate Region near the United States border, and the Gran Desierto dune fields of northwestern Sonora, close to the Arizona border in Yuma County. This species joins four others as the only grasses endemic or nearly endemic to the Sonoran Desert: *Aristida californica* Thurber var. *californica*, *Distichlis palmeri* (Vasey) Fassett, *Muhlenbergia brandegei* C. Reeder, and *Tuctoria fragilis* (Swallen) Reeder (Felger 2000; Felger & Wilder 2012; Peterson & Annable 1991; Reeder 1982; Reeder & Felger 1989).

No other species of *Cenchrus sensu stricto* has so small a geographic range, such large burs, or so few burs per inflorescence (DeLisle 1963). As with some other *Cenchrus* species, seedlings germinate within the bur, which may remain attached to the root of the mature plant. *Cenchrus palmeri* burs not only puncture sleeping bags, tents, and bare feet at the beach but they tenaciously cling together in nasty clusters attaching to cloths and shoes. Border crossers from Sonora to Arizona

are likely vectors. Crossing at night, they often attach piece of carpet to their shoes and *Cenchrus* burs might well cling to the carpet pieces and fabric shoes. Similarly, the burs are also transported by vehicle tires (Fig. 3), as was the case at the Arizona collection site.



Figure 2. *Cenchrus palmeri*, the sole specimen at the site near the Yuma Dunes, not collected. Photo by J. Malusa, 5 January 2013.

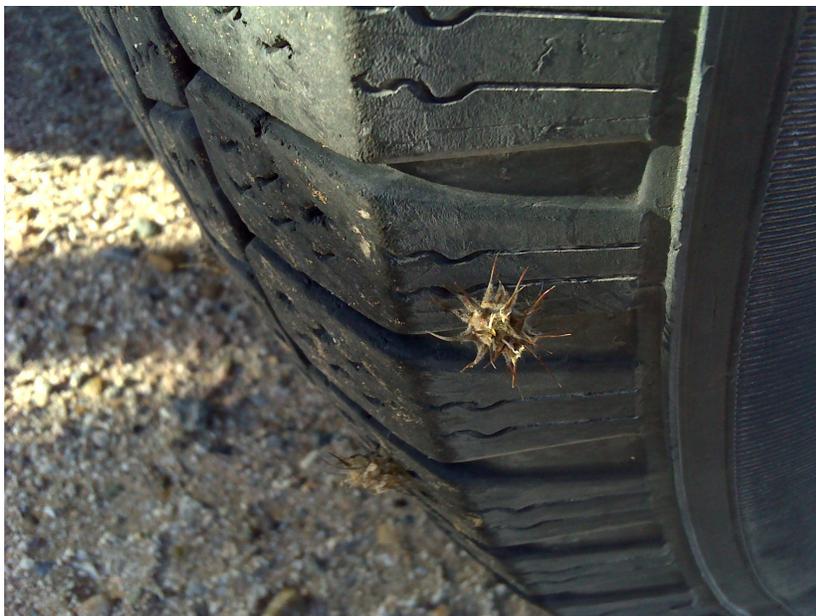


Figure 3. *Cenchrus palmeri* bur, at the collection site. Photo by J. Malusa, 19 January 2013.



Figure 4. *Cenchrus palmeri* at the collection site. Photo by J. Malusa, 19 January 2013.



Figure 5. *Cenchrus palmeri*, from the collection site. Photo by J. Malusa, 19 January 2013.

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