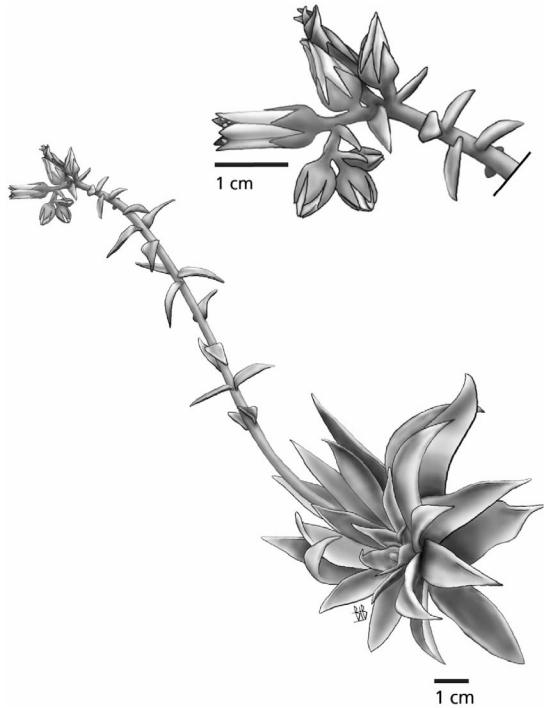

FIG. 4. Illustrations of *D. cochimiana* by Brett Bell.

Dudleya cochimiana S.McCabe, sp. nov. Figs. 4, 5 A, B, C, D, E. TYPE: MEXICO, Baja California, Isla Cedros, Gran Cañon, north side of canyon on a rock outcrop facing east or north east. Associates: *Rhus lentii*, *Pachycormus discolor* var. *veatchianus* (Kellogg) Gentry, *Viguiera lanata* (Kellogg) A.Gray, *Simmondsia chinensis* (Link) C.K.Schneid, *Phaseolus filiformis* Benth. N28.18823, W115.17409, elev 31m., 1 April 2015, *Stephen McCabe #1288.29 & Sula Vanderplank, Thomas Mulroy, Sarah Chaney* (holotype: UC).

On Isla Cedros Moran (1951) recognized two named species (*D. albiflora* Rose and *D. acuminata* Rose) and one possible unnamed broad-leaved

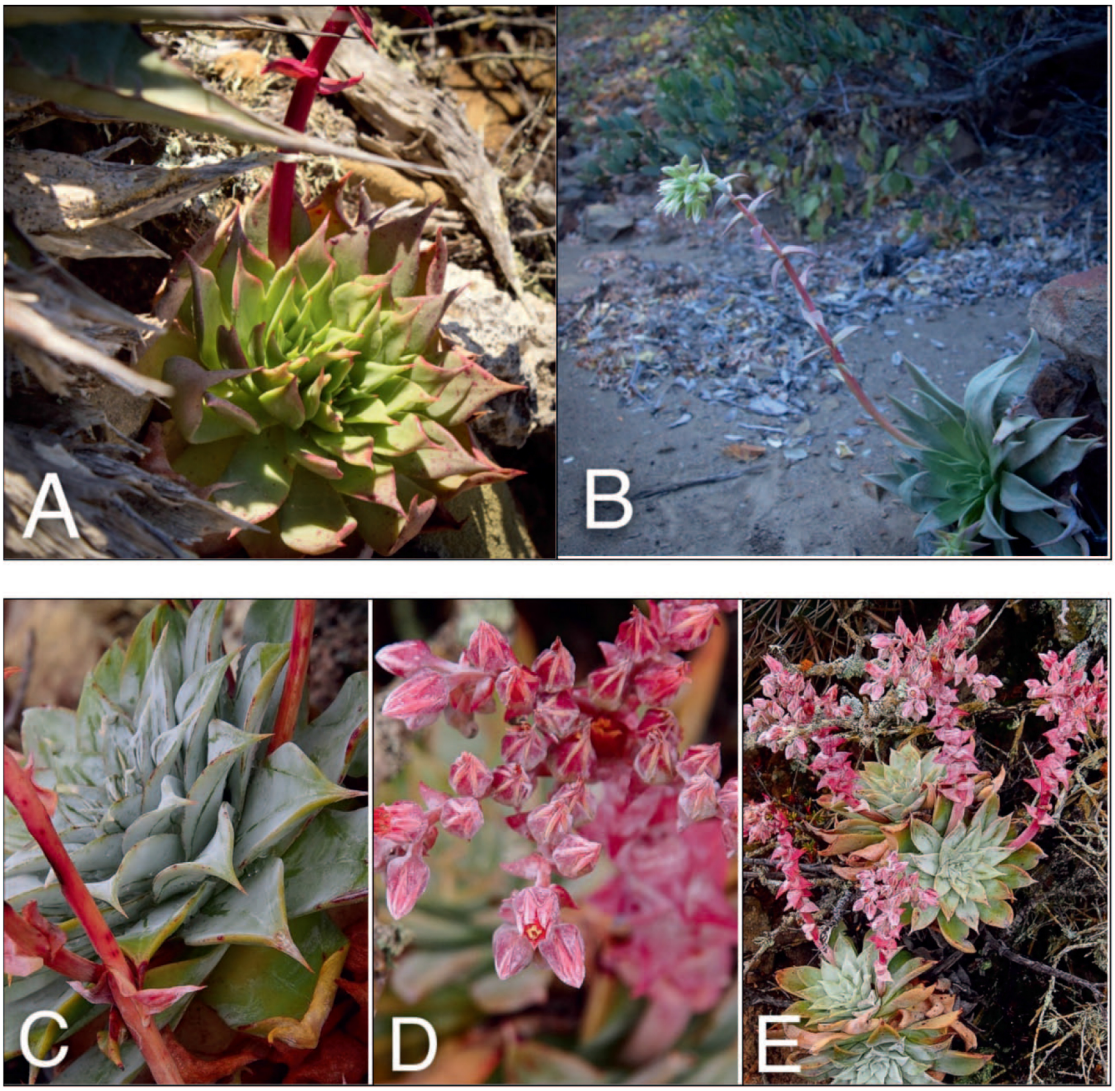

FIG. 5. Morphology of *D. cochimiana*. (A) Rosette of *D. cochimiana,* probably near where Moran #3000 was collected in this coastal, sunny locality. (B) *Dudleya cochimiana*, at the type locality, slightly inland in partial shade, photographed a few meters from where it grew. (C, D, E) Photos of *D. cochimiana,* glaucous-leaved, pink-flowered, upland plants south of the main populations of *D. pachyphytum* and *D. delgadilloi*. The last three photos by Michael Uhler.

species that Moran planned to name *D.* "*cedrosensis*" (Moran 1951). Although other suggestions, drafts, and species from the dissertation were published (Moran 1952, 1953, 1957), *D. cedrosensis* was not formally published. Moran (1951) expressed concern about the justification for naming "*D. cedrosensis*" because plants with "suborbicular leaves" in the higher elevations on Isla Cedros did not fit well with lower elevation forms. He was using suborbicular as a two dimensional term, rather than a three dimensional form, i.e., flat, not as a rounded convex shape (see definition in Harris and Harris 2001). Moran did write, "*Dudleya* is well represented, and still puzzling, on Isla Cedros."

Johansen (1932a) mentioned *D. moranii*, but did not publish *D. moranii* D.A.Johans. until the next article (1932b), in which he described a narrow mainland range and said it did not branch. He named it after Reid Moran. Moran planned to lump the species (Moran 1951) with *D. albiflora* and did so in 1960 (Moran 1960). Rebman and Roberts (2012) recognized *D. moranii* again, including plants from the mainland, and Isla Natividad and Isla Cedros, which "differs [from *D. albiflora*] mostly in chromosome number." They did not differentiate the species based on branching vs. not branching as Johansen (1932a, b) had.

Ratay et al. (2014) proposed a possible identification for the unnamed taxon as *D. ingens* Rose, a variable species that occurs on the mainland well north of the island. Yost et al. (2013) did not include the unnamed taxa in their study because material was not available.

Paratypes: Mexico, Baja California, Isla Cedros, Grand Cañon, farther up the canyon from the holotype; plant slightly waxy, with pink flowers. Associates: *Agave sebastiana* and *Pachycormus discolor* var. *veatchianus* 28°10′56.71″N, 115°11′6.10″W, 1 April 2015, *Stephen McCabe #1288.31 & Sula Vanderplank, Thomas Mulroy* (UC). Mexico, Baja California, Isla Cedros, Grand Cañon, farther up the canyon from the holotype on boulders in the wash at a major fork in the canyon; plant slightly waxy, with pink flowers. Associates: *Agave sebastiana, Cochemiea pondii, Harfordia macroptera* (Benth.) Greene & Parry, *Eriophyllum confertiflorum* (DC.) A.Gray, 28°10′57.09″N, 115°11′6.24″W, plants in population with white or pink flowers, 1 April 2015, *Stephen McCabe #1288.32, Sula Vanderplank, and Thomas Mulroy* (UC).

Included here as a paratype: plant collected as *Dudleya ingens* Rose, Reid Moran #3000, which he later considered publishing as "*Dudleya cedrosensis*" 30 April 1948. Isla Cedros: Canyon Mouth near middle of east coast of Cedros Island, 28.236667N, –115.173333W (UCJEPS n=34, SD). Author viewed live plants at that locality on 01 June 2014, though no viable looking seeds were found to bring back to grow a specimen. On the other side of the island on 02 June 2014, the author viewed similar plants at N28°10.831′, W115°16.122′ ± 15′, Elevation 31.7m, again without viable-appearing seeds at that season.

Diagnosis. *Dudleya cochimiana* differs from *D. pachyphytum, D. delgadilloi,* and *D. albiflora* by its broad leaves and its petals erect or with the tips only slightly outcurving, and the flowers presented pendently, laterally, or ascending. It differs from *D. acuminata* by its larger rosettes with more leaves and its white to pink flowers presented pendently, laterally, or ascending, rather than upright and yellow flowers in *D. acuminata*. The rosettes are smaller and a dark green with cuspidate tips in *D. cochimiana* compared to *D. ingens* at the type locality with larger rosettes, thicker pale green leaves that taper more gradually, i.e. with acute tips. The dark green or white leaves of *D. cochimiana* differ from *D. gatesii* with light green, light waxy leaves, often with bud printing and slightly recurved leaf tips. The inflorescences of *D. cochimiana* are ascending and those of *D. gatesii* tend to be more erect and taller, with the flowers presented laterally to erect, but not pendent. Some of the lower elevation, more coastal plants of Isla Cedros approach *D. gatesii* in leaf color and shape.

Plants rosette-forming perennials, moderately caespitosely branched; succulent; evergreen. **Rosettes** usually single or few branched with 0–20 branches; to 14.5 cm diameter, often open, flat. **Stem** to 2.4 cm diameter × 30 cm long, ± erect; if cut, not wounding red or other color, but older stem brown to orange within; apex below leaf bases plane, not depressed centrally when viewed in longitudinal section, stem not visible between dead leaves. **Leaves** 25–45 per rosette, green with some pink above and below and non-waxy with some minor bud-printing on younger leaves, to white-waxy with pink; 2.5–9 cm long, 1.8–2.4 cm wide, 0.3–0.4 cm thick, medium tough to crush, sap clear, base not wounding red, spreading to ascending; concave above, oblong to sub-spatulate, apex cuspidate, tip sometimes slightly reflexed to reflexed. **Dead leaves** rusty to black with white, very persistent, tough, not twisted upon drying. **Inflorescence** peduncle 5mm diameter, total length 12.2–14.4 cm, 0.2 cm to first branch or much longer, a cyme or panicle, ascending with apex nodding in bud and slowly uncurling; flowers congested in a dense ball, 6 or more flowers per terminal branch (cincinnus), 1.7cm between first and fifth flower on a cincinnus, with flowers distributed on all sides, (not on one side as in *D. pulverulenta),* with three main branches that re-branch 0–1 times; the base of the first pedicel from the first inflorescence branch 0–4 cm in cymose inflorescences. Peduncle ascending, pink to very red, not waxy to very waxy, cincinni not straight, but going from side to side (zig-zagging) between pedicels in mature inflorescences. **Lower bracts** 12–17mm × 6–8mm, cordate to more elongate, not folded at base, clasping, not wounding at base, usually slightly reflexed, more so at tip, light green with pink to pink, waxy especially on the base of upper ones, fairly congested upon the peduncle. **Bracts** greenish-yellow to pink, very little wax, narrow, small. **Pedicels** 2mm wide, 5–6 mm long, somewhat waxy. **Buds** slightly spiral arrangement of petals when viewed from above. **Flowers:** 1–2 open at once on a cincinnus; **Sepals** 6–8 mm long, 3 mm wide, thin, somewhat waxy from pedicel to base of sepal or very waxy, fused very little, roughly symmetrical, apex acute, appressed in bud, sinuses of calyx angled- not rounded; **Petals** (Corolla lobes) 12 mm long, 2–2.5 wide, slightly broader above, white to pink on the inner surface, white to a bit of pink on the lowland, non-waxy plants, moderately keeled, tips erect to slightly curved out, top of petals drying whitish, just above sepals drying whitish-yellow in non-waxy form; **Stamens** anthers black or red or intermediate color in bud, black when mature at least in some, not exerted, but at level of sinuses between petals; **Pistils** Clear to white at flowering, styles not exerted. Reid Moran #3000 was n=34 (Uhl and Moran 1953).

Distribution and Habitat

Endemic to Isla Cedros, on the east side of the island from the splash zone next to the beach, inland to the Gran Cañon and near ridgetops. Where near the ridgetops, usually on the west side of the ridge, very roughly 5–50 m below the ridges on rocks or rocky slopes, sometimes with a cryptogamic crust.

They are found in full sun to part shade on rocky slopes and rock outcrops in a variety of habitats, including "open low maritime succulent desert scrub" near the ridges. It often grows with *Agave sebastiana, Ferocactus chrysacanthus,* and *Simmondsia chinensis*. It is sometimes associated with *Euphorbia misera* Benth., *Rhus lentii, Pachycormus discolor* var. *veatchianus*, *Viguiera lanata,* and *Phaseolus filiformis*. *Dudleya acuminata* grows somewhat near it on the ridgetops.

Etymology

The specific epithet, *cochimiana,* refers to the Indigenous People, their language, and the region. *Cochimí* is a language group and a collective name often used for the various tribes of Indigenous People of Isla Cedros and central Baja California. Suggested common name: Cochimí Siemprevive, Cedros Live-forever, Cedros Siemprevive.

Phenology

Dudleya cochimiana flowers April–June.