

***ERIGERON PALOSVERDENSIS* (ASTERACEAE),  
A NEWLY RECOGNIZED SPECIES FROM SOUTHWESTERN CALIFORNIA**

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**ABSTRACT**

***Erigeron palosverdensis*** N.A. Uelman, **sp. nov.** (Asteraceae), is presently known from a few locations on the Palos Verdes Peninsula in southwestern California. It is a member of the *Erigeron foliosus* complex and is morphologically distinct and geographically isolated from the other varieties recognized in this taxon. It is distinguished from typical *E. foliosus* by its large leaf size, forming rhizomatous patches, and densely glandular phyllaries, the midnerve raised and with a row of thick-based multicellular uniseriate trichomes.

In June 2015, during a botanical survey, I observed an unusual species of *Erigeron* (Asteraceae) along Miraleste Canyon Trail on the Palos Verdes Peninsula. In June 2017, I found additional plants in other locations on the Palos Verdes Peninsula within canyons and along north-facing slopes.

These plants do not have a good match among varieties of *Erigeron foliosus* Nutt. in the keys of Nesom (1992, 1993, 2006, 2012) or Keil & Nesom (2012). Based on morphology, habitat, a propagation study, they appear to represent a distinct species — diagnostic features include large leaves (8–20 mm wide, 55–85 mm long) and densely glandular phyllaries, the midnerve raised and with a row of thick-based multicellular uniseriate trichomes. The plants also form large rhizomatous patches and have a preference for north-facing slopes within or near canyons. In addition, from present day field visits and from searching the Consortium of California Herbaria, it appears that no other variety of *E. foliosus* occurs on the Palos Verdes Peninsula (Fig. 10). These plants are geographically isolated from the distribution of *E. foliosus* and its varieties in southern California including the Channel Islands (Fig. 10).

Germination of fertile cypselae from plants on the Palos Verdes Peninsula showed that the F1 generation maintains the large leaf size (Fig. 7). F1 seedlings even exhibit large leaves for the seedling stage (Fig. 7).

**ERIGERON PALOSVERDENSIS** N.A. Uelman, **sp. nov.** **TYPE: USA. California.** Los Angeles Co.: Palos Verdes Peninsula, Glory Trail, 33.7666111°, -118.3544167, 242 m, 28 Jun 2017, *N. Uelman s.n.* (holotype: RSA 0119959).

Distinct from *Erigeron foliosus* in its combination of its distinctly rhizomatous habit, large leaf size, and densely glandular phyllaries, the midnerve raised and with a row of thick-based multicellular uniseriate trichomes.

**Perennial herbs** forming large patches from rhizomes (distinct from elongate caudex branches, see Fig. 6), antrorsely strigillose throughout with acute-tipped multicellular uniseriate trichomes 0.5–1 mm long. **Stems** 63–127 cm, simple or sparingly branched, leafy throughout, internodes along most of stem 5–20 mm long. **Leaves** oblanceolate to oblong along most of stem 55–85 mm long, 8–20 mm wide, ± tinged reddish-purple with age, distally decreasing to linear bracts 5–23 mm long, 1–5 mm wide. **Peduncles** not much differentiated except by proximal increase in internode length and gradual decrease of leaves to bracts, trichomes just proximal to heads ascending to spreading and ± thick based. **Involucres** cup-shaped; phyllaries in 4 series, inner 2 series subequal, 4–5 mm long, 0.5–1 mm wide,

linear-oblong, acute to acuminate, bodies green with paler marginal zone, margins widely scarious, midvein raised, orange-resinous, drying  $\pm$  straw-colored with darker centers, outer series graduated, 2.5–5 mm long, narrower, linear-acuminate, bodies green with paler marginal zone, margins narrow, midvein raised, orange-resinous, drying  $\pm$  straw-colored with darker centers. Outer phyllary bodies densely puberulent with gland-tipped trichomes 0.1–0.2 mm long and with appressed to  $\pm$  ascending, acute tipped large based multicellular uniseriate trichomes along midvein 0.3–0.5 mm long, phyllary midvein with narrow embedded resin gland, this drying reddish-brown. Inner phyllary bodies densely puberulent with gland-tipped trichomes 0.1–0.2 mm long and large based multicellular uniseriate trichomes minutely present to absent, phyllary midvein with narrow embedded resin gland, this drying reddish-brown. **Ray flowers**  $\pm$  15–35; corollas pale purple to purple, tubes 3.5–4 mm long, puberulent with ascending trichomes 0.1–0.2 mm long, rays spreading 7–9 mm long, 1–2 mm wide, glabrous. **Disk flowers**  $\pm$  120; corollas yellow, 4.5–5 mm long, 0.8–1 mm wide, tube and throat puberulent with ascending trichomes 0.1–0.2 mm long. **Cypselae** [immature] 1.3–1.5 mm long, puberulent with ascending, unicellular trichomes  $\pm$  0.2 mm long, ribs 2, center stramineous with edges golden brown, [mature-fertile] 2.8–3 mm long, puberulent with ascending, unicellular trichomes  $\pm$  0.2 mm long, ribs 2, golden brown, [mature-sterile] 1.75–2 mm long, ribs 2, center stramineous with edges golden brown; outer setae 0.5–0.7 mm long, inner pappus bristles  $\pm$  25, barbed, subequal, 4–5 mm long.

North-facing slopes within or near canyons in coastal scrub and riparian woodlands; 200–350 m. Flowering May–October.

This species is named after the Palos Verdes Peninsula where the holotype was collected. Suggested common name: Palos Verdes daisy. The Palos Verdes Peninsula is in the South Bay area of southern California. It contains remnant patches of coastal sage scrub (CSS). These CSS patches dot the landscape and provide some of the last remaining CSS between Orange County and the Santa Monica Mountains.

The PVP has an intriguing geological history which is relevant to the biogeography of its extant flora and fauna. The tectonics, which eventually gave rise to the peninsula, started in the Pliocene resulting in the submarine formation of a doubly plunging anticline along the south side of the northwest-trending Palos Verdes fault (Dibble 2000; Woodring et al. 1946). This anticline emerged as an island during the early Pleistocene (circa 2.8 MYG) and only become part of the mainland by the end of the Pleistocene (circa 11,700 YG) (Dibble 2000; Woodring et al. 1946). The unique biogeographical relationships with the Channel Islands, Islands of the Baja California Peninsula, and coastal southern California, presents numerous interesting questions and conservation concerns regarding its flora.

Members of the *Erigeron foliosus* complex have been recognized at species and varietal ranks. Varietal rank was employed in the most recent treatments Nesom (1992, 1993, 2006, 2012) and Keil & Nesom (2012). However, Guy Nesom (pers. comm. 2021) noted that the varieties of *E. foliosus* “could justifiably be recognized as species and that very little if any intermediacy among them is present and that each variety is essentially allopatric with all the others.” Large-leaved forms of *E. foliosus* occur in California and were mapped along with the narrow leaved forms of *E. foliosus* (Nesom 1992). These large-leaved forms of *E. foliosus* could represent this newly described taxon but further work is needed to determine this.

The choice here to treat Palos Verdes daisy at specific rank necessitates a reevaluation of the rank for other taxa of the *Erigeron foliosus* complex. Such work has already begun and some members of the *E. foliosus* complex have been recognized at the species rank (Keil 2018).



Figure 1. *Erigeron palosverdensis*. Holotype (RSA 0119959).





Figure 2. *Erigeron palosverdensis*. 1-2. Habit. 3-4. Close up of stems.





Figure 3. *Erigeron palosverdensis*. 1. Cauline to distal leaves. 2. Older leaf coloration. 3-4. Cauline leaves.





Figure 4. *Erigeron palosverdensis*. 1. Flowering. 2-3. Ray floret. 4. Disk floret. 5. Fruiting.



Figure 5. *Erigeron palosverdensis*. 1. Phyllaries. 2. Outer phyllary. 3. Outer phyllary side view, backlit. 4. Close up of outer phyllary (side view) showing thick-based multicellular uniseriate trichomes (TB) along the midnerve and small glandular trichomes (GT) throughout the rest of the phyllary. 5. Cross-section of outer phyllary showing thick-based multicellular uniseriate trichomes (TB) along the midnerve and small glandular trichomes (GT) throughout the rest of the phyllary. 6. Inner phyllary side view backlit. 7. Inner phyllary.





Figure 6. *Erigeron palosverdensis*. 1. Large rhizomatous patch in flower. 2. Rhizome segment. 3. Rhizomes forming on a one and half year-old plant. 4-5. Large rhizomatous patches, non-flowering.





Figure 7. *Erigeron palosverdensis*. 1. Non-fertile cypsela. 2. Fertile cypsela. 3. Seedling. 4. 1-month-old plant. 5. 2-month-old plant. 6. 6-month-old plant.

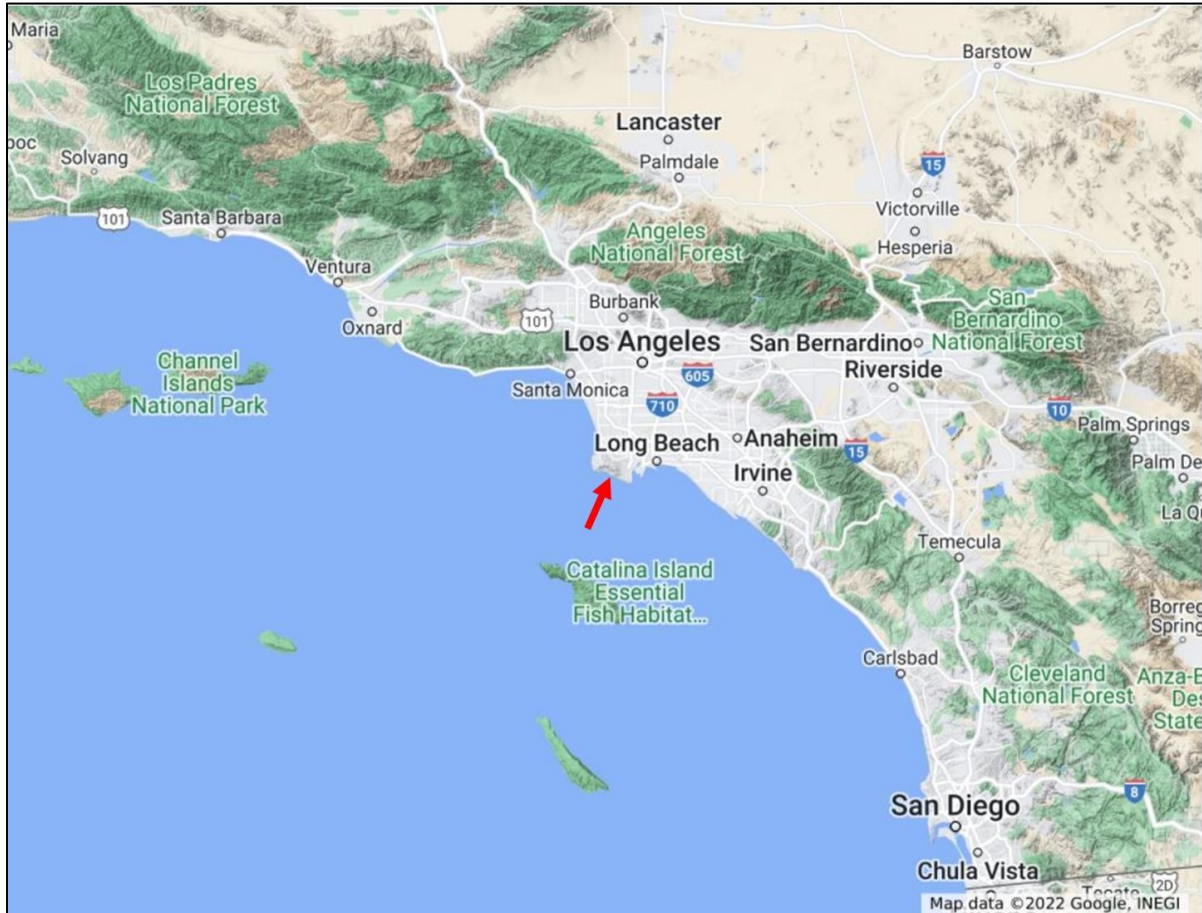


Figure 8. Location of the Palos Verdes Peninsula in southern California.



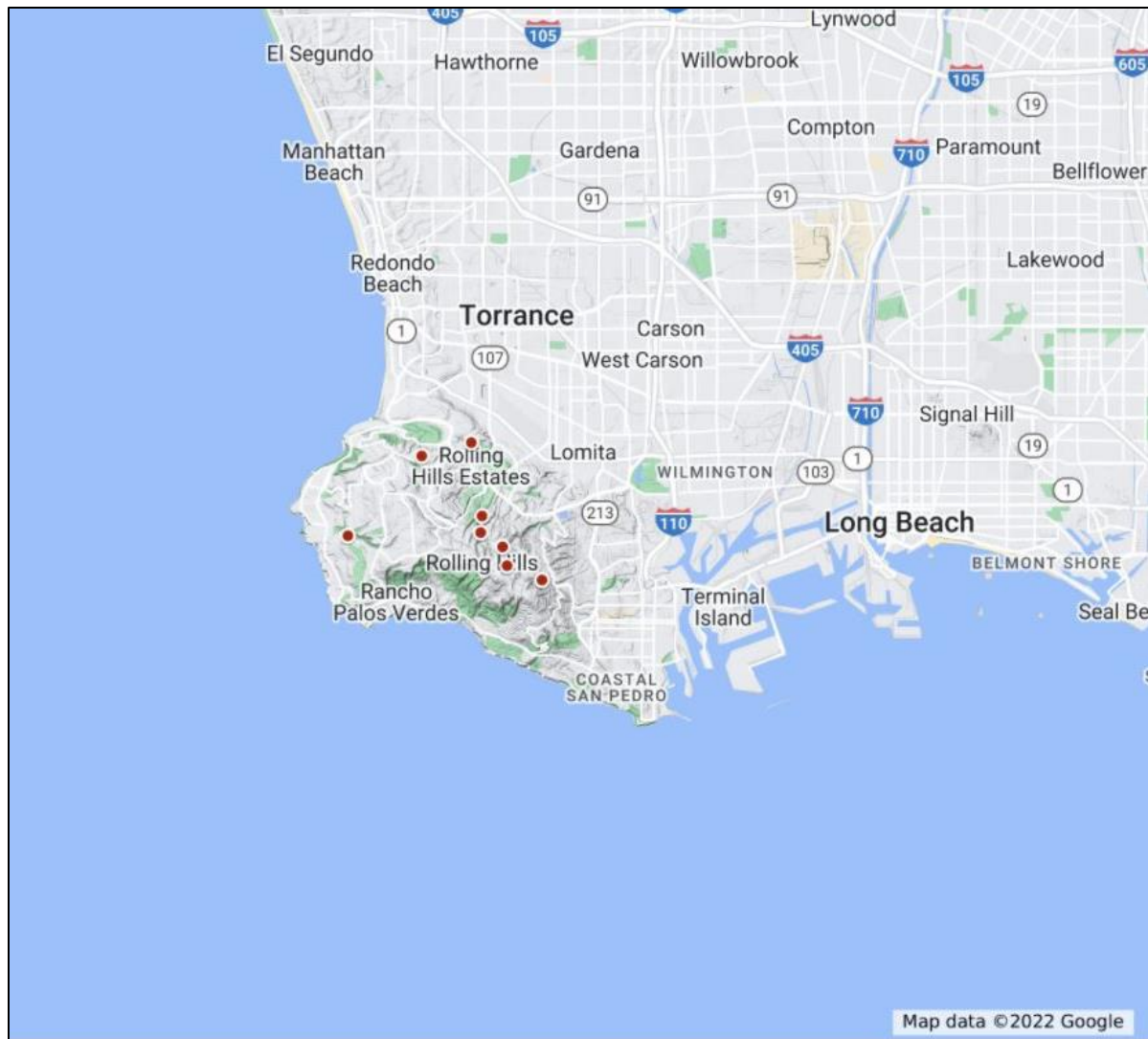


Figure 9. Distribution of *Erigeron palosverdensis*, on the Palos Verdes Peninsula.

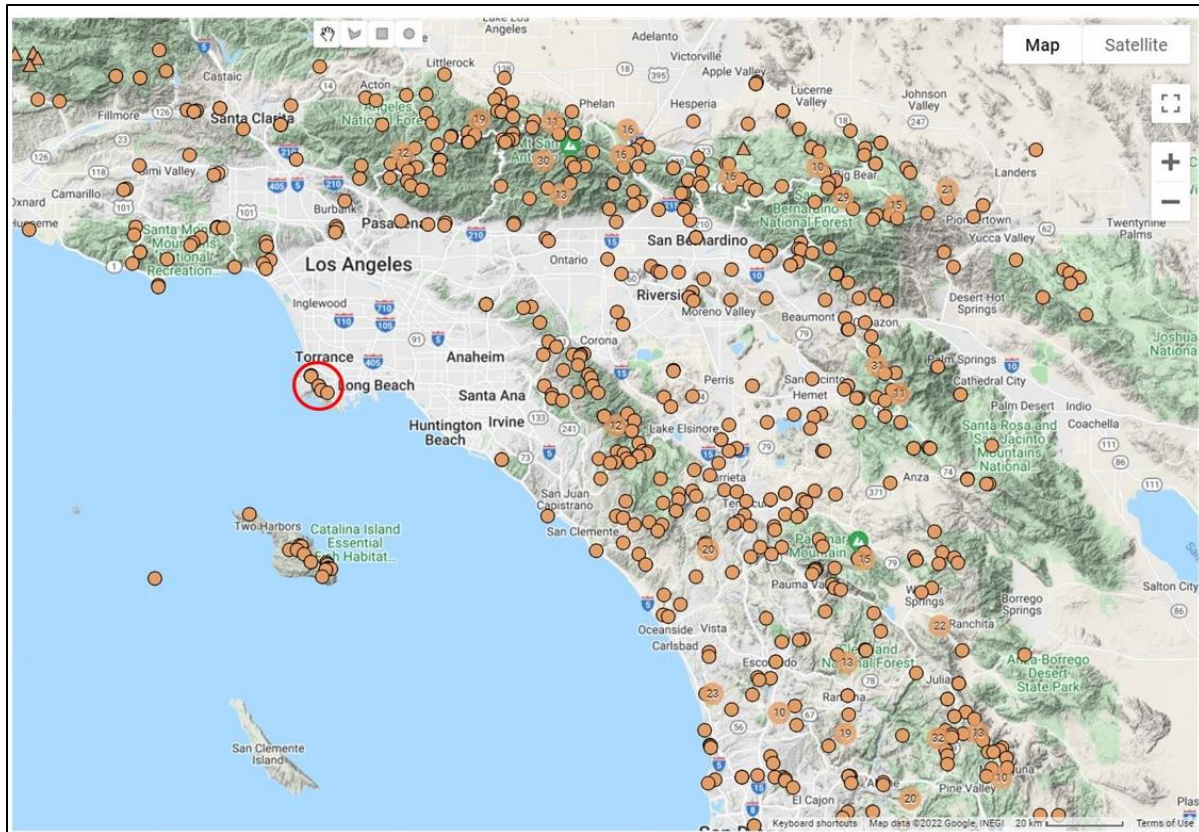


Figure 10. Distribution of vouchered specimens of *Erigeron foliosus* and its varieties in southern California from the Consortium of California Herbaria (CCH2) map search function (shown as orange points). All points present on the Palos Verdes Peninsula (shown in red circle) are from the authors collections of *E. palosverdensis*. No other records are present on the Palos Verdes Peninsula or in the surrounding Los Angeles Basin. This map shows the isolation of *E. palosverdensis* from the surrounding distribution of *E. foliosus* and its varieties in southern California including the Channel Islands (<https://www.cch2.org/portal/collections/map/index.php>).

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