

## PUNCTELIA PUNCTILLA (HALE) KROG, NEW TO NORTH AMERICA

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### ABSTRACT

*Punctelia punctilla* (Hale) Krog, previously known only from South Africa, is reported from southern California. Habitat data and the disjunction are discussed.

KEY WORDS: *Punctelia punctilla*, California, North America.

Few *Punctelia* species are found outside temperate or subtropical regions, most occurring in Africa and the Americas (Krog 1982). One species, *P. rudecta* (Ach.) Krog, is known to have a remarkable range that spans several continents in both hemispheres. Thus, it was not surprising to find a closely related species, *P. punctilla* (Hale) Krog (Figure 1), in coastal southern California. *Punctelia punctilla* has previously been known only from South Africa (Krog & Swinscow 1977). Hale & Cole (1988) list *P. borrieri* (Sm.) Krog, *P. stictica* (Duby) Krog and *P. subrudecta* (Nyl.) Krog from California. Of these species, *P. punctilla* may resemble *P. stictica* at first glance because of the distinct, white rimmed pseudocyphellae and the darkening lobe tips. However, *P. punctilla* is clearly related to *P. rudecta* due to the presence of isidia, lecanoric acid and a pale lower surface. *Punctelia rudecta* (which is absent in the western states; M.E. Hale, pers. comm.) is a larger, corticolous species with smaller pseudocyphellae and abundant isidia which are coralloid or squamiform with a glossy cortex. The isidia of *P. punctilla* differ in being low, papilliform or sparingly branched with a dull surface. *Punctelia punctilla* is strictly saxicolous. Additional range extensions may be discovered if collections of *P. rudecta* from rock are carefully examined to detect misidentifications of *P. punctilla*.

In California, *P. punctilla* occurs rarely in the Pt. Mugu-Camarillo area of Ventura County. The climate at this site is Mediterranean, and the predominant vascular plant community is coastal sage scrub. As with most of the southern California coastline, agriculture and urbanization have left little natural habitat intact. *Punctelia punctilla* is apparently restricted to a rocky hill region about five kilometers from the ocean at the base of outcrops, mostly on east facing slopes thickly vegetated with *Opuntia littoralis*, *Coreopsis gigantea*, *Salvia leucophylla* and *Artemisia californica*. Characteristic

lichens of these outcrops include *Xanthoparmelia mexicana* (Gyelnik) Hale, *Flavopunctelia flaventior* (Stirton) Hale, *Physcia callosa* Nyl., *Niebla ceruchoides* Rund. & Bowler in ed., *Leprocaulon microscopicum* (Vill.) Gams ex D. Hawksw., *Dimelaena radiata* (Tuck.) Hale & Culb., *Acarospora schleicheri* (Ach.) Massal., *Thelomma mammosum* (Hepp in Hartung) Massal., *Lecanora gangaleoides* Nyl., *Caloplaca bolacina* (Tuck.) Herre, *Lecanora muralis* (Schreber) Rabenh. and *Buellia halonia* (Ach.) Tuck. It is interesting to note that the author has collected *P. borrieri* from similar saxicolous communities along California's southern and central coast. *Punctelia borrieri* is also known from South Africa (Krog & Swinscow 1977).

How can one account for such an enigmatic South African-coastal California disjunctive range? This outlying population may be the result of chance long distance dispersal, or it could be considered a relic of an earlier and broader range due to vicariance events, e.g., the allopatric distribution of closely related taxa due to events in geologic history. Long distance dispersal may be the more reasonable explanation when a sorediate species is involved, since isidia are relatively heavy and only transportable over short distances (Ott 1987). Although it is not easy to identify a specific vector/dispersal/pathway, chance long distance dispersal cannot be dismissed as a real possibility. Plants might have been carried along with ballast to nearby Pt. Mugu Naval Station. Also, Croizat (1952) discusses a variant of tracks of the African Gate that conceivably connects southern Africa to points beyond in the New World. On the other hand, a hypothesis supporting vicariance is strengthened when this distribution is viewed as a possible example of a classic pattern (a New World/southern Africa disjunction) for plants which evolved before the continents drifted apart (Hale 1987; Culberson 1972) Whatever the explanation, this new record represents an emerging distribution for *P. punctilla* that may add insight to lichen biogeographic study.

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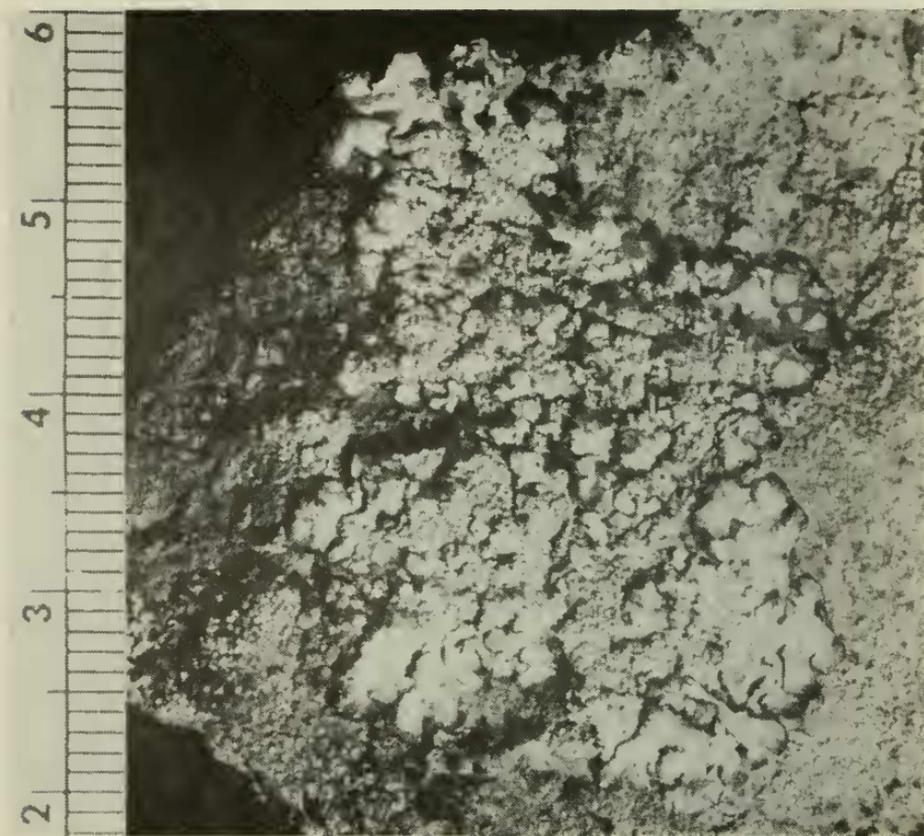


Figure 1. *Punctelia punctilla* (Hale) Krog from California, Ventura Co.: At base of conglomerate rock on E. Potrero Rd. near Lewis Rd. *Riefner 87-69* (COLO,IRVC,SBM,US), TLC: atranorin and lecanoric acid. At base of outcrop off Lewis Rd. and SE of Camarillo State Hospital, *Riefner 89-20* (IRVC,WIS). TLC: atranorin and lecanoric acid. Solvent systems G, A, C of White & James (1985) used for TLC analyses.

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