

Material studied. Mendocino County: Thiers 9248, 9519, 10530, 10569, 10625. Sonoma County; Thiers 9410.

Discussion. As in the case of *B. satanas*, the presence of *B. erythropus* in North America has been questioned by Singer (5), and he has referred collections previously assigned to this species to *B. subvelutipes* Peck. The major distinctive feature of the latter species is the presence of the coarse dark-brown tomentum at the base of the stipe. Other less significant differences noted by Singer are found in the colors of the pileus, size and length of the stipe and spore size. The California material does not possess the tomentum on the basal portion of the stipe, and does possess the dark brown color of the pileus which Singer lists as more characteristic of the European form of *B. erythropus*.

**Boletus puniceus** Thiers sp. nov.

Pileus 6–10 cm latus, convexus vel planus, siccus, tomentosus vel fibrillosus, "ocher red" vel "etruscan red" vel "deep corinthian pink" vel "brownish vinaceous" vel "russet" vel "terra cotta"; caro flava; pori 1 mm lati, rubri; stipes aequalis vel ventricosus, siccus, glaber ad apicem, demum granulosis vel tomentosus ad basim, flavus, rubro-tomentosus; sporae 11.2–16 × 5.2–8  $\mu$ , ellipsoideae vel fusoideae; cystidia hyalina, fusoidea vel fusoideo-ventricosa, ad apicem elongata, 45–54 × 10–12  $\mu$ ; hyphae epicutis innexae.

Typus: in herb. San Francisco State College, lectum Cleary Reserve, Napa Co., California, 23 Nov. 1963, H. D. Thiers 10821.

Pileus 6–10 cm broad at maturity, convex when young becoming plano-convex to plane with age, often highly irregular or undulating; surface dry-matted tomentose to cottony fibrillose to appressed fibrillose, usually not appearing fibrillose scaly or rimose; typically colored "ocher red" to "etruscan red" to "deep corinthian pink" when young, unchanging or changing to near "brownish vinaceous" to "light russet vinaceous" to "russet" to "vinaceous russet" to "terra cotta" on the disc when older, sometimes changing to "vinaceous brown" to "sorghum brown" toward the margin; margin incurved becoming decurved, entire.

Flesh 1–2 cm thick, colored near "naphthalene yellow" to "amber yellow," bluing immediately upon exposure; taste and odor not distinctive.

Tubes shallowly to deeply depressed; 1–1.5 cm long; colored "olive lake" to "pale greenish yellow" to "naphthalene yellow," bluing upon exposure; pores small, 0.5–1 mm broad, angular, colored near "oxblood red" to "dragons blood red" to "ferruginous" to "vinaceous rufous," bluing immediately upon bruising.

Stipe 5–9 cm long, 1–3 cm broad at the apex, typically bent near the base, equal to ventricose; surface dry to moist, glabrous at the apex, typically becoming tomentose to granulose toward the base; background color of surface "naphthalene yellow" to "massicot yellow," usually

masked with granules or tomentum colored "pompeian red" to "dragons blood red" to "brick red," bluing when bruised; solid, flesh yellow, becoming dark blue immediately upon exposure.

Spores  $11.2-16 \times 5.2-8 \mu$ , ochraceous in KOH, dark ochraceous in Melzer's reagent, ellipsoid to subfusoid, thick-walled, smooth, frequently appearing 2-celled because of two distinct vacuoles; basidia clavate, 4-spored, with numerous vacuoles,  $30-35 \times 9-11 \mu$ ; cystidia on sides of tubes relatively obscure scattered, hyaline, fusoid to fusoid ventricose with tapering apices, sometimes appearing incrustated,  $45-54 \times 10-12 \mu$ ; tube trama hyaline, obscurely divergent to parallel; pileus trama interwoven, homogeneous; cuticular hyphae interwoven, with numerous free hyphal tips, which frequently taper toward the free end, not appearing cystidioid, occasionally forming a turf, pale ochraceous in KOH, hyphae  $\pm 8 \mu$  in diam; surface of stipe differentiated as a mass of caulocystidia or free hyphal tips, highly irregular in shape and size, ochraceous in KOH, sometimes incrustated; clamp connections not present.

Chemical reactions. KOH—flesh yellow to pale orange, cuticle red but quickly darkening;  $\text{NH}_4\text{OH}$ —flesh yellow, cuticle negative or darkening slightly; HCl—flesh pink, cuticle negative;  $\text{FeSO}_4$ —flesh negative to pale gray, cuticle negative to pale gray;  $\text{HNO}_3$ —flesh pink, cuticle red; sulfoformalin—flesh yellow, cuticle negative; guaiac—flesh pale blue, cuticle pale blue.

Habit, habitat and distribution. Gregarious to scattered under oaks and manzanita in open hardwood forests.

Material studied. Napa County: Thiers 10821 TYPE. Marin County: Thiers 10873.

Discussion. This species is apparently closely related to *B. erythropus* and *B. subvelutipes*. The most striking difference is seen in the color of the carpophore. *B. puniceus* is red to reddish pink or vinaceous red and does not turn brown during any stage of development. Additional differences are seen in the more ellipsoid spores which are larger in diameter, in the larger cystidia, the absence of lactifers in the pileus trama, and in the structure of the cuticle of the stipe.

Two additional new species of boletes which have been collected in California do not belong to the section *Luridi*. Both species fruit abundantly and are commonly found during the fall of the year.

### **Boletus smithii** Thiers, sp. nov.

Pileus 10-16 cm latus, convexus, siccus, subtomentosus vel tomentosus, primitus "pale olive buff" vel "tawny olive" vel "isabella color," maculatis puniceis vel rubis, demum "pompeian red" vel "jasper red" vel rubro-maculatus; caro flava; tubuli "barium yellow" vel "straw yellow" demum "reed yellow" vel "olive yellow";