Amanita pachycolea D. E. Stuntz, sp. nov.

Pileus 7-12 cm latus, convexus vel campanulatus demum plano-convexus vel umbonatus; margine conspicue striatus vel tuberculato-striatus, plerumque glaber, brunneus, ad marginem griseo-brunneus, interdum circulos brunneo ornatus; discus interdum fragmentis albis vel albidis veli universalis obtectus. Lamellae adnate vel inconspicue decurrentes dein liberae, albae demum aurantio-flavae, in sicco flavae vel bubalinae. Stipes 11-24 cm longus, apice 9-17 mm crassus, aequalis vel sursum attenuatus, albus vel aurantio-brunneus vel fuscior, exannulatus, non bulbosus; volva abundans, saccata, crassa et coacta, persistens, interdum collabens. Sporae 11.4-13.5(-14.4) x 10.4-12.4

µm, hyalinae, globosae vel ovoideae, inamyloideae. Holotypus: H. D. Thiers 21502, Mendocino County, California, 14 November 1967. SFSU.

Pileus 7-12 cm broad, convex to near campanulate when young, becoming convex to plano-convex to umbonate to sometimes irregular in outline with an undulating margin with age; margin decurved, unchanging or becoming plane to uplifted with age, entire, typically becoming rimose and eroded, conspicuously striate or tuberculate striate, striations 15-20 mm long, abruptly terminating and of more or less equal lengths for any given basidiocarp resulting in a very noticeable band of striations which remains distinct when dried; surface viscid to subviscid, glabrous except for occasional scattered fibrils, rarely with a flat, usually solitary patch of white to whitish universal veil tissue on the disc; ground color dark brown, "carob brown" to "chestnut brown" to "mummy brown" on the disc, fading toward the margin to brown or grayish brown, "hazel" to "sayal brown" to "tawny olive", sometimes with a noticeable dark ring of brown pigment at inner margin of striations. Context white, floccose, 5-10 mm thick on disc, thinner toward the margin, unchanging when bruised or exposed. Taste and odor not distinctive.

Lamellae adnate to decurrent by a short, inconspicuous hook, typically free with age, white when young, unchanging or becoming tawny to orange brown or orange yellow with age, sometimes with only spots showing these colors, usually drying yellow to buff; close to subdistant or occasionally appearing crowded, ventricose, broad; edges fimbriate, usually colored grayish to slightly drab or dark brown; lamellulae in several tiers.

Stipe 11-24 cm long, 9-17 mm broad at apex, equal to tapering, often slightly toward the apex, no bulb at base; stuffed becoming hollow with age; surface white to olive buff to sometimes as dark as orange brown or darker, dry, typically appressed fibrillose to fibrillose scaly, sometimes only slightly furfuraceous at the apex. No annulus. Volva abundant, saccate, thick and felted, persistent but sometimes collapsing with age, frequently extending as high as 8 cm up the stipe and up to 5 mm thick; inner surface white, outer surface white to off white, usually developing rust colored to brown or yellow brown spots with age, sometimes becoming entirely ferruginous or dingy yellowish white.

Spores white in mass, globose to ovoid, smooth, thin-walled, hyaline in KOH, inamyloid, 11.4-13.5(-14.4) x 10.4-12.4 µm, apiculus eccentric or usually so. Basidia 4-spored, 53-80 x 13-16 µm, clavate, hyaline in KOH. Pleurocystidia and cheilocystidia not differentiated. Marginal cells of lamellae abundant to sometimes apparently absent, clavate, terminal, hyaline in KOH, not in chains, 20-27 x 6-17 µm. Lamellar trama bilateral, diverging from a moderately broad central strand, hyphae 3-6 µm wide, some inflated cells up to 10-20 µm wide, hyaline in KOH. Pileal trama homogeneous, interwoven, hyaline in KOH. Pileal cuticle differentiated as an outer trichodermium of more or less erect, tangled hyphal tips 2-3 µm wide, subtending a more tightly interwoven layer, partially gelatinizing in KOH; hypodermis cellular, dark brown in KOH. Volva composed of narrow, 2-4 µm wide, interwoven hyphae with scattered to rare sphaerocysts similar to those of the lamellar margin. Caulocystidia common on stipe apex, 30-65 x 10-20 µm, clavate, thin-walled, often subtended by a small, cylindrical cell. Clamp connections absent.

Habit, habitat and distribution. This Amanita is often rather common in the north coastal forests of western North America. To the best of our knowledge it has not been found south of Monterey County in California. It appears to be somewhat less common in the areas north of the state of California, although it was originally recognized in Washington state by D. E. Stuntz. It seems to be associated with conifers; however, it has also been found in mixed woods.

Material studied. CALIFORNIA. Del Norte Co.: G. A. Breckon 568. Humboldt Co.: G. A. Breckon 564. Marin Co.: D. Smith 121. Mendocino Co.: G. A. Breckon 211; J. Jensen 22: D. A. Largent 577; H. D. Thiers 8449, 9740, 21502 (Holotype), 23086. San Mateo Co.: R. Halling 1197; W. J. Sundberg 33; H. D. Thiers 35612. Santa Cruz Co.: R. Halling 1104. WASHINGTON. Grays Harbor Co.: D. E. Stuntz 14432 (WTU). Yakima Co.: D. E. Stuntz 14900 (WTU). Pierce Co.: J. F. Ammirati 8501 (WTU) D. E. Stuntz 16804 (WTU).

Observations. This species is recognized by the very dark brown to dark gray brown color of the pileus, the slightly larger spores than those of A. vaginata (Bull. ex Fr.) Vitt., the usually bright brown color of the stipe,

the thick, felt-like volva with ferruginous stains, and the characteristic color of the lamellae with dark colored margins. It looks quite similar to the European Amanita umbrinolutea Secr., but that species does not have such a darkly colored pileus, has smaller spores and the lamellae are white. Because of the absence of an annulus, the presence of inamyloid spores and the conspicuously striate margin, A. pachycolea belongs in the section Vaginatae.

Amanita pachycolea was first recognized as distinct by Dr. D. E. Stuntz at the University of Washington. N. Nakamura (1965) supplied a description of it and used the provisional name A. pachycolea in his masters thesis, Department of Botany, University of Washington. The species epithet pachycolea was suggested by Stuntz. Smith et al. (1979) in a publication on gilled fungi used the name Amanita pachycolea Stuntz. As far as we can tell from their key and description, their concept of A. pachycolea is in line with the circumscription given here.