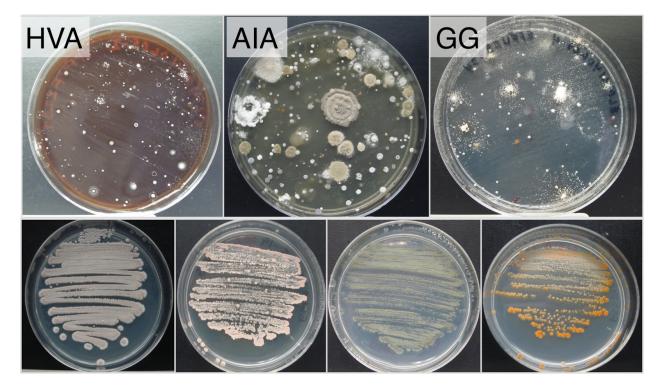


**Figure S1. Map of bat capture sites from Arizona and New Mexico.** Five cavernous areas were chosen for bat sampling including Grand Canyon-Parashant National Monument, El Malpais National Monument, Bureau of Land Management Caves, Fort Stanton-Snowy River Cave National Conservation Area, and Carlsbad Caverns National Park.



**Figure S2. Bat microflora.** Humic acid-vitamin agar (HVA), actinomycete isolation agar (AIA), and gellan gum (GG) were used to isolate parent cultures from bat membranes. Pure cultures of Actinobacteria were isolated on R2A for identification and screening.