Hot-Spots of Biodiversity and Management Issues for North American Cave-Adapted Fauna

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Abstract

Although many more species remain known but undescribed from caves and associated habitats in the contiguous United States, 973 species and subspecies formally have been described from these habitats (all data from published records and statewide lists of subterranean faunas) and compose the largest known subterranean fauna of any country in the world. Of this total, 673 are terrestrial (troglobites) and 300 are aquatic (stygobites). Arachnids, crustaceans, and insects dominate the biodiversity, with each contributing between 22% and 30% of the total species diversity. Approximately 20% of the land area of the 48 contiguous states is underlain by cave-bearing rocks and nearly 45,000 caves are known from 1,128 counties in 48 states, yet less than 17% of U.S. counties (513 of 3,112) have even one troglobite or stygobite. Troglobitic species are concentrated in northeast Alabama (particularly Jackson County) with other clusters in Kentucky, Texas, Virginia, and West Virginia. Only 23 counties account for over 50% of the terrestrial species and subspecies. Stygobitic species are concentrated in south central Texas (Hays County) with other agglomerations in Florida, Oklahoma, Texas, Virginia, and West Virginia. Only 18 counties account for over 50% of the aquatic species and subspecies. Over 60% of the entire obligate subterranean fauna are county endemics and about 300 of these also are single site endemics; less than 4% of these have federal status. This fauna is extremely vulnerable and their protection requires habitat preservation, including protection of the associated surface habitat.