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Descriptions of a new species and previously unknown males of *Nesticus* (Araneae: Nesticidae) from caves in Eastern North America, with comments on species rarity

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Abstract

We describe the new species, *Nesticus pecki*, an apparently cave-limited (but not troglomorphic) species from the southeastern edge of the Cumberland Plateau in southern Tennessee. Previously unknown males of *N. dilutus* Gertsch, *N. stygius* Gertsch, and *N. furtivus* Gertsch are illustrated and described. These male specimens, along with additional females, are all taken from their respective type localities. *Nesticus valentinei* Gertsch is considered a junior subjective synonym of *N. barri* Gertsch [new synonymy]. Several cave-limited species in the region are single-site endemics, including *N. furtivus*, *N. dilutus*, and *N. pecki*. We discuss the conservation status and biological factors that may potentially threaten the continued existence of these populations.

Key words. *Nesticus*, species rarity, caves, southern Appalachians

Introduction

The spider genus *Nesticus* Thorell, 1869 (family Nesticidae) is taxonomically diverse in the southern Appalachian mountains of eastern North America, with at least 30 species distributed over a geographic area extending from southern West Virginia to central Alabama (Gertsch 1984; Coyle & McGarity 1992; Hedin 1997a). Appalachian *Nesticus* are habitat specialists, reflecting apparently strict physiological constraints that limit these spiders to cool, moist microhabitats. These constraints, in combination with habitat discontinuity in both space and over time, have promoted tremendous species diversification and endemicity (see speciation models of Wiens 2004a, 2004b). This fine-scale diversification

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