

## **Middle America, Not Mesoamerica, is the Accurate Term for Biogeography**

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## COMMENTARY

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### MIDDLE AMERICA, NOT MESOAMERICA, IS THE ACCURATE TERM FOR BIOGEOGRAPHY

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A confusing mixture of “Middle America” and “Mesoamerica” has been used in the recent literature of biogeography for the lands between the United States of America and South America. In the context of both science and English, “Middle America” has nearly 150 years of historical usage and much greater geographical and biogeographical accuracy in its definitions. “Mesoamerica,” coined for anthropology in the mid-20th century, has both looser and more variable definitions, often unconnected to geology or biogeography. Middle America is thus the appropriate English term for this region in the literature of nonhuman biology.

The earliest dates given in the Oxford English Dictionary (OED 1989) for use of the Greek “meso-” as a prefix to modify scientific English terms are from 1826 to 1835. These early scientific uses came from anatomy and entomology and included such etymological gems as mesoscutellum and mesorectum. A distribution of the frequency of 129 dated examples of the use of terms modified by “meso-” reveals that the popularity of coining such words peaked between 1875 and 1900 (OED 1989).

Before the incorporation of the Greek “meso-” for “middle” became so popular in scientific English, Baird (1864:1) defined Middle America: “As understood in the present work, the term ‘North America’ is intended to cover the region in and north of the valleys of the Rio Grande and Gila, or north of a line drawn from the mouth of the Rio Grande on the Gulf of Mexico, to that of the Yaqui, near Guaymas, on the east side of the Gulf of California, and embraces the peninsulas of Florida and of Lower California and Greenland. Middle America extends from the same line southward to the continental part of South America, including Mexico, Guatemala, San Salvador [= El Salvador], Nicaragua, Honduras, Costa Rica, the Isthmus of Panama and of Darien, and the whole of the West Indies, excepting Trinidad and perhaps Tobago.”

By the time he terminated his efforts on his *Review of American Birds*, Baird (1872:iii) had refined this definition: “The southern boundary of the United States, but also including the whole Peninsula of Lower California, is here taken as that of

*North America*; while by *Middle America* is to be understood the region intervening between the United States and the southern end of the Isthmus of Darien, and embracing the whole West Indies, excepting Tobago and Trinidad.”

With the exception of Baja California, which was later included in Middle America, this definition remains consistent with the accepted current primary English definition of the term (OED 1989:1078): “Middle America, (*a*) a geographical region comprising central America, Mexico, and the Antilles . . .” It is also concordant with important biogeographical treatises (e.g., AOU 1983, 1998), in which the only modifications are clarification of the southern limits, e.g., “The southern boundary in Middle America is the border between Panama and Colombia; in the Lesser Antilles, Grenada is the southernmost island included.” (AOU 1998:xii).

Although geopolitical boundaries have played an important role in the evolving definitions of Middle America, they have been used out of convenience with respect to geology and the biogeographical relationships of the fauna being treated. Both historical biogeography and geology have formed the basis for continued use of the term (e.g., AOU 1983). The geological uniting of North and South America is conveniently delimited by the Panama–Colombia border, and the U.S.A.–Mexico border has been retained as being “reasonably close to the northern limits of the tropics” (AOU 1983:x). The latter represents the transition zone between the Nearctic and the Neotropical regions and is biogeographically complex (Brown and Lomolino 1998); this geopolitical boundary is arguably as good as any that might be proposed for this transition zone. For mobile organisms such as birds, this definition of Middle America has demonstrable utility both as a region with considerable avian endemism and as one in which hundreds of migratory species spend the northern winter (AOU 1998). This region has merit for other taxa as well, such as some snakes, amphibians, and fishes (Smith et al. 2007, Řičan et al. 2008, Castoe et al. 2009). Finally, as a region, it encompasses numerous smaller areas of endemism among birds and other taxa (e.g., Bibby et al. 1992, Halas et al. 2005).

Insofar as biogeography has an applied aspect in its association with geopolitically defined laws and regulations for the management and protection of biodiversity, such a convenient blend of geopolitical, geological, and biogeographical boundaries is reasonable, particularly when it stems from geology and biogeography. Indeed, such a basis makes the term suitable for a breadth of uses, from explicit needs within biogeography (e.g., International Code of Area Nomenclature; Ebach et al. 2008) to efforts to manage and conserve biodiversity (e.g., Bibby et al. 1992, Miles et al. 2006).

Perhaps not unusually, the trend of modifying scientific terms with the Greek prefix “meso-” percolated from the traditional sciences into the social sciences rather later. Kirchoff (1943) is recognized as the first to define the term Mesoamerica. Seeing misapplication of the term Middle America among anthropologists with respect to indigenous peoples, he defined

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Mesoamerica as “the central region of America, from northern Mexico to Nicaragua, which was civilized in pre-Spanish times.” (OED 1989:1068). This is a region comprising part of Mexico (excluding the northeast), Guatemala, Belize, El Salvador, part of Honduras, and parts of Nicaragua and Costa Rica (excluding the eastern regions of the latter three countries; Kirchhoff 1943, his figure). Mesoamerica thus defines a geographic subset of Middle America based on human cultures. Although no doubt useful in anthropology, his term and its definition are clearly at considerable odds with that of Middle America with respect to nonhuman biogeography. Furthermore, although the prefix meso- is adapted into English from the Greek term “middle,” its usage in English is variable enough to require considerable clarification, being used not only for spatial or position references but also for time, temperature, size, and for things having intermediate properties (OED 1989).

Two uses of Mesoamerica are generally possible, (1) an essentially correct use following the widely accepted and standard definition from anthropology given above, or (2) a less accurate usage as an intended synonym of Middle America. Use of Mesoamerica in ornithology and biogeography nearly always lacks definition but usually seems to be an attempt to use the term as a synonym of Middle America (e.g., Solórzano et al. 2004, Miller et al. 2007, Dick and Heuertz 2008). Perhaps even more confusing are publications that use both terms without defining Mesoamerica, leaving the reader to wonder whether the two terms are being used interchangeably (2 above) or as truly representing different geographic areas (1 above; e.g., Patten and Smith-Patten 2007, Sánchez-González et al. 2007). Worst of all are uses that depart from any accepted definition (e.g., Myers et al. 2000). Clarity and accuracy clearly suffer; Mesoamerica is a rather loosely defined subset of Middle America and should not be considered a synonym.

In biogeography, we have long had our own, biogeographically clearer term, Middle America, for the land between the United States and South America. Mesoamerica is an unsuitable substitute for several reasons: (1) it was coined and adopted later for anthropology on the basis of attributes and distributions of indigenous peoples, (2) it is more loosely defined geographically and biogeographically, (3) it includes only a subset of the land area important in this region from a biogeographical perspective, and (4) it has seen its definition become even looser as its use has occasionally spilled over into biogeography.

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