COMMENTARY

FORUM: AVIAN SUBSPECIES IN THE 1980'S

Subspecies seem always to have generated a good deal of controversy among ornithologists. Some have considered them to be sacred units of taxonomy, each reflecting a discrete category of geographical variation (and perhaps incipient speciation) within a species. Others have held them to be artifacts that have reality only in museum trays and that are useful only to those who delight in fiddling with nomenclature. With the recent upsurge of interest in ecology, behavior, physiology, and evolutionary dynamics, the importance of the traditional subspecies has seemingly diminished. As ornithology enters the 1980's, it seems appropriate to examine the status and utility of subspecies in this science once again.

In late 1981 I therefore invited several individuals to contribute essays expressing their personal views on avian subspecies. My charge to them was framed as a series of questions: How should subspecies be defined? Is the concept just a tool of classification that is no longer of much use? Can or should the concept be revised to make it more compatible with contemporary views in population biology? Do subspecies exist, as real biological units? Each prepared a contribution independently of the other essayists, and each essay represents an explicitly personal view. Collectively, they do not resolve the issue, or provide definitive answers to the questions I posed. If they stimulate some thought and some study, however, they will have served the purpose of this Forum well.—JOHN A. WIENS

OF WHAT USE ARE SUBSPECIES?

ERNST MAYR[1]

The subspecies has had a long history in taxonomy. In the Linnaean period it was called "variety," and no distinction was made between individual and geographical varieties. The first authors, like Esper, who used the word *subspecies* used it to designate geographical varieties, and this has continued to be the meaning of subspecies, at least in zoology. What was at first not clearly recognized was that introducing the term and concept of subspecies was the entering wedge of the destruction of a purely essentialistically defined species. The majority of authors, right to the end of the 19th century, defined even the subspecies essentialistically as a constant, well-defined entity at a lower level than the species. Any distinct natural population that was not considered sufficiently different to be called a separate species was called a subspecies. Owing to this purely morphological definition, many sibling species, particularly in entomology, were first described as subspecies.

After 1859 the subspecies acquired a dual biological meaning. On the one hand, it was considered the "incipient species" of Darwin, that is, as a stage in the speciation process. On the other, it was considered by certain authors like Gloger, Bergmann, and J. A. Allen to be evidence of the adaptive response of species to local climatic conditions. That the first of these two meanings was ordinarily true only for isolates while the second was particularly conspicuous for widespread continental species was not at first recognized and subsequently caused a good deal of confusion.

The subspecies concept had perhaps its greatest importance in the history of ornithological systematics during the shift from the morphological to the biological species concept, roughly from the 1880's to the 1920's. While the morphological criterion of intergradation had previously been the exclusive subspecies criterion, "geographical representation" now became the yardstick. As Stresemann

[1] Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts 02138 USA.