

**SMITHSONIAN INSTITUTION. UNITED
STATES NATIONAL MUSEUM.
BULLETIN 175. VARIATIONS AND
RELATIONSHIPS IN THE SNAKES OF
THE GENUS PITUOPHIS**

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OLIVE GRIFFITH STULL

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BY
OLIVE GRIFFITH STULL.



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The scientific publications of the National Museum include two series, known, respectively, as *Proceedings* and *Bulletin*.

The *Proceedings* series, begun in 1878, is intended primarily as a medium for the publication of original papers, based on the collections of the National Museum, that set forth newly acquired facts in biology, anthropology, and geology, with descriptions of new forms and revisions of limited groups. Copies of each paper, in pamphlet form, are distributed as published to libraries and scientific organizations and to specialists and others interested in the different subjects. The dates at which these separate papers are published are recorded in the table of contents of each of the volumes.

The series of *Bulletins*, the first of which was issued in 1875, contains separate publications comprising monographs of large zoological groups and other general systematic treatises (occasionally in several volumes), faunal works, reports of expeditions, catalogs of type specimens, special collections, and other material of similar nature. The majority of the volumes are octavo in size, but a quarto size has been adopted in a few instances in which large plates were regarded as indispensable. In the *Bulletin* series appear volumes under the heading *Contributions from the United States National Herbarium*, in octavo form, published by the National Museum since 1902, which contain papers relating to the botanical collections of the Museum.

The present work forms No. 175 of the *Bulletin* series.

ALEXANDER WETMORE,
Assistant Secretary, Smithsonian Institution.

WASHINGTON, D. C., April 23, 1940.

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By OLIVE GRIFFITH STULL

INTRODUCTION

FROM its wide range and varied habitat, its conspicuous size and pattern, and its abundance the genus *Pituophis* is popularly one of the best-known genera of North American snakes. Throughout most of North America these snakes are familiar—under the name of “bull snakes,” “pine snakes,” or “gopher snakes” in the United States, in Mexico as the “cencuate” or “alicante,” and in Lower California as the “corallilo.” Nevertheless, it is doubtful whether any other North American ophidian genus is in greater confusion with reference to the taxonomic position of the included forms, and our knowledge of their probable affinities.

An understanding of the phylogenetic relationships within a genus can be attained only by a synthetic survey of all the included forms, based upon a detailed analytical study of the structural variations of each form in their relation to geographic distribution. No such consideration of the genus as a whole has been undertaken. The work of Van Denburgh and Slevin (Van Denburgh and Slevin, 1919, and Van Denburgh, 1920) represents the only attempt to correlate variation with distribution, as a basis for the interpretation of affinities between several forms of the genus. The deficiencies that must be recognized in their conclusions are undoubtedly due to the insufficiency of the material studied and to the limitations imposed by the consideration of a circumscribed geographic region.

The purpose of the present study is to define the taxonomic status of the included forms on a structural and geographic basis, to determine their mutual affinities as far as is possible from the available material, and to assemble the accumulated data concerning them.

In the attempt to make the conclusions as complete and accurate as possible, material has been borrowed from every available source. In every specimen the scale and pattern features were examined in detail. For every form the teeth were studied in a representative series of specimens, and the hemipenes were dissected in several individuals. Drawings to represent the color pattern of each form have been made from typical specimens.