



## ***Stratigraphic nomenclature of the Tertiary of western New Mexico and eastern Arizona: An alternative proposal***

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*This is one of many related papers that were included in the 1994 NMGS Fall Field Conference Guidebook.*

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# STRATIGRAPHIC NOMENCLATURE OF THE TERTIARY OF WESTERN NEW MEXICO AND EASTERN ARIZONA: AN ALTERNATIVE PROPOSAL

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I am very grateful to Steve Cather, Jim Ratté and Dick Chamberlin for permitting me to review the previous paper (Cather et al., this volume) and to present some alternatives. The six-fold Tertiary classification (T1 through T6) of NMGS (1982) is here proposed as a chronostratigraphic framework (Fig. 1) to which lithostratigraphic units can be attached, in accordance with the stratigraphic code of NACSN (1983). In the Mogollon-Datil volcanic field, boundaries between T2, T3, and T4 are based on dated ignimbrite sheets that do not transgress time lines; their chronostratigraphic boundaries can also serve as lithostratigraphic boundaries. It is further proposed that NMGS sponsor a committee to review the Tertiary terminology of New Mexico and make recommendations on the following issues: (1) The adequacy and validity of proposed chronostratigraphic boundaries, (2) Boundary problems in interfingering volcanic rocks from diverse sources, (3) The placement of arbitrary boundaries between laterally equivalent units with different traditional names, e.g. Mogollon Rim-Baca Formations, Gila-Santa Fe Groups, and (4) The nomenclature of rock bodies, keeping in mind the NACSN (1983)

rules regarding establishment and maintenance of type localities, naming of units (with special regard to the rule of priority), and abandonment of obsolete or redundant terms.

Specifically, it is recommended that the term *Spears* be retained as a formation with the type section and stratigraphic limits originally defined by Tonking (1957). On the north side of the Mogollon-Datil field, a predominantly volcanoclastic distal apron takes the place of the entire T2-T4 volcanic section. It should be given a unit name other than *Spears*. The term *Datil* should be dropped as a stratigraphic term on the grounds of "widespread misuse in diverse ways which compound confusion" (NACSN, 1983), as illustrated by the variety of stratigraphic ranges assigned to it by different authors (Fig. 1). It survives as part of the name for the entire field. The concept of two major units, equivalent to the proposed *Datil* and *Mogollon* Groups of Cather et al. (this volume), is workable if a mappable boundary can be demonstrated. Over much of the southern part of the field, the two proposed groups are separated by a thick section of basaltic to andesitic lavas (T3a of NMGS, 1982). The disconformity (local

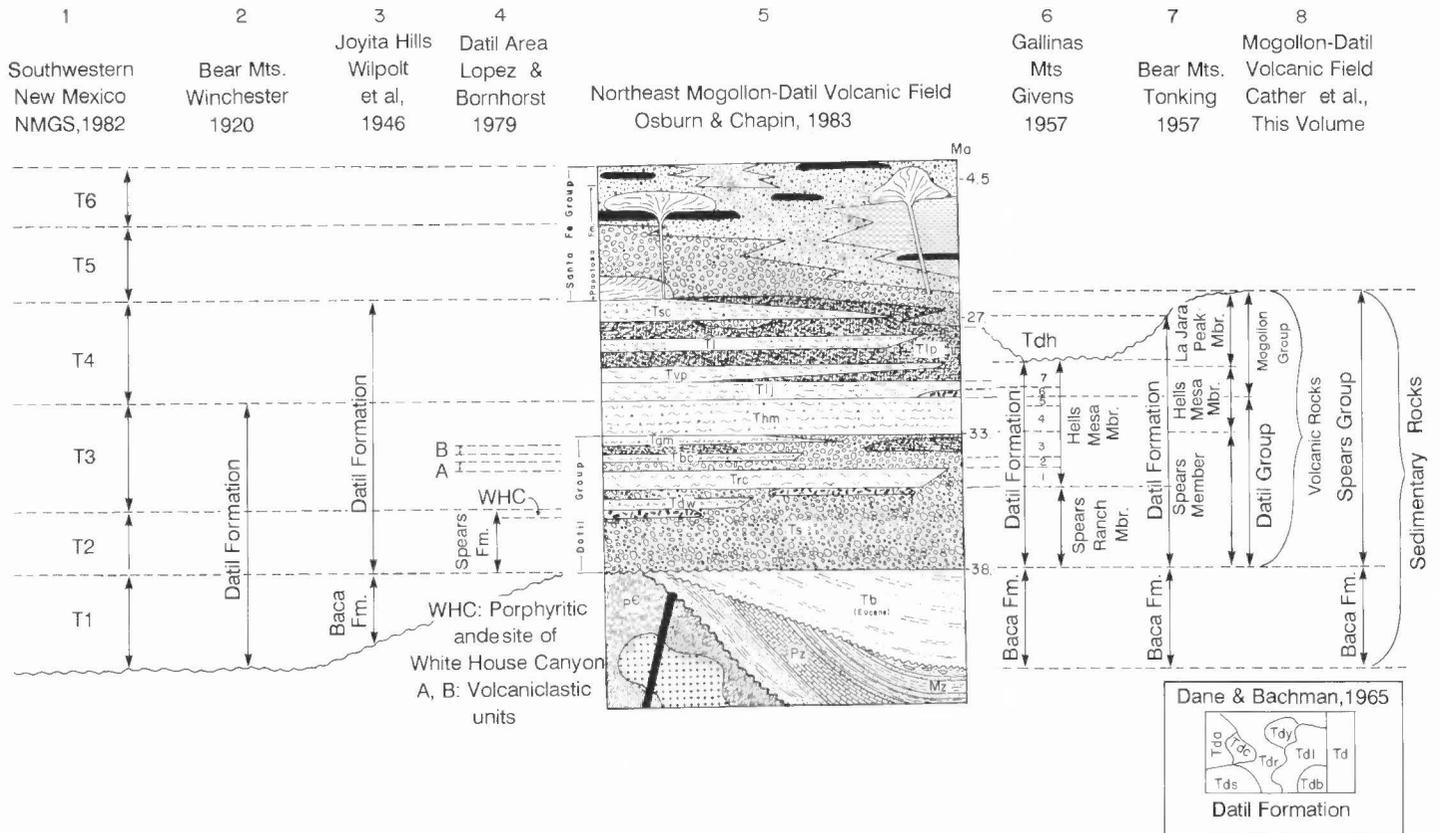


FIGURE 1. Columns showing the stratigraphic positions and ranges assigned by various authors to units mentioned in the text, northeastern part of Mogollon-Datil volcanic field. Inset: The "facies" of the Datil Formation according to Dane and Bachman (1965). Td-Datil Formation, undivided; Tdy-rhyolitic flows; Tda-andesite and basaltic andesite; Tds-volcanoclastic rocks; Tdc-boulder beds; Tdr-rhyolite tuffs; Tdl-latitude; Tdb-pumiceous breccia. Symbols for Column 5: Tb-Baca Formation; Tbc-Blue Canyon Tuff; Tdw-Datil Well Tuff; Tgm-tuff of the Granite Mountain; Thm-Hells Mesa Tuff; Tl-Lemitar tuff; Tlj-La Jencia Tuff; Tlp-La Jara Peak Basaltic Andesite; Trc-Rock House Canyon Tuff; Ts-Spears Formation; Tsc-South Canyon Tuff; Tvp-Vicks Peak Tuff (nomenclature from Osburn and Chapin, 1983).

unconformity) and petrologic discontinuity (Davis et al., 1993) at the base of the Bear Springs and Poverty Creek basaltic andesites (T3) may be part of such a boundary. If so, it is recommended that the two groups proposed by Cather et al. (this volume) be raised to supergroups. The new name *Cobre Supergroup* (after the Cobre Mountains, Grant Co., east of Hurley, NM) is here recommended in lieu of Datil Group; it comprises T2 and T3 without Bear Springs Basalt. The term *Mogollon Supergroup* is suitable for T4, including Bear Springs Basalt. New group names are needed for T2a, T3r and T4r of NMGS (1982); the existing names *Alum Mountain Group* and *Bearwallow Mountain Group* are proposed for T3a and T4a, respectively. Other existing formations, members, and tongues would remain unchanged.

This alternative proposal will be described in detail in a forthcoming issue of *New Mexico Geology*. I hope that it will stimulate further discussions and lead to a consensus.

**SUPPLEMENT TO REFERENCES CITED BY CATHER ET AL.  
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