Radiocarbon Dates for Paleoindian Components (Folsom, Scottsbluff) at the MacHaffie Site, West-Central Montana Rockies

Leslie B. Davis, Christopher L. Hill, and John W. Fisher, Jr.

Stratified Folsom and Scottsbluff components were documented by Forbis (1952) and Forbis and Sperry (1951) at the MacHaffie (24F4) occupation site, which is situated on an ephemeral tributary of Prickly Pear Creek on the northwest flank of the Elkhorn Mountains south of Helena, Montana. Fifteen radiocarbon measurements are available for Paleoindian components at the site. Here we present information pertaining to two radiocarbon measurements, which indicate an age of ca. 10,400–10,100 RCYBP for the site's Folsom components, and compare those data with the remaining radiocarbon inventory.

The excavations conducted in 1951 by Forbis and Sperry documented a 2.7-m-thick stratigraphic sequence. The bottom 1.5 m consisted of a series of alluvial sands. No artifacts were found in these lower sands (Forbis and Sperry 1952). The sands were overlain by a “black soil” containing Folsom artifacts. The Folsom-bearing deposit graded upward into 60 cm of gray clays contain-
ing Scottsbluff artifacts. These clays were overlain by ca. 58 cm of alluvium and other deposits.

Excavations in 1990, ca. 6 m upstream (east) from the Forbis-Sperry excavations, distinguished two Folsom components (f1, f2) and two overlying Scottsbluff components (s1, s2). These were assigned to the following archaeological strata: stratum I (Folsom?), stratum II (Folsom), stratum III (Scottsbluff?), and stratum IV (Scottsbluff) (Davis et al. 1991). Radiocarbon measurements for a stratigraphic sequence exposed at the south end of Trench A, which contained these Paleoindian components, on various materials—including bone gelatin, apatite, and charcoal—yielded seven dates ranging from ca. 9130 to 7905 RCYBP. Subsequent measurements of bone apatite, organic sediment, and bulk soil samples associated with the Scottsbluff components yielded dates ranging from ca. 9340 to 8019 RCYBP, while a date of ca. 9730 RCYBP was obtained from a bulk soil sample associated with Folsom.

Excavations in 2001 exposed a stratigraphic profile adjacent to the east side of the Forbis-Sperry excavation area. The lower set of deposits consist of ca. 1 m of muddy sands. It is overlain by a 10- to 20-cm-thick dark sandy mud, which can be correlated to the Folsom artifact-bearing “black soil” reported by Forbis and Sperry (1952). Above the sandy mud is ca. 1.2 m of alluvial and colluvial muds and silts. The muddy sands under the Folsom “black soil” appear to be alluvium that reflects terminal-Pleistocene/early-Holocene braided-stream environments (cf. Albanese 1991, 2000). Bone collagen (cf. Bison sp.) collected from sands directly below the dark mud was dated to 10,390 ± 40 RCYBP (Beta-159167; CAMS); this date appears to be associated with the oldest Folsom component (f1) at the site (= stratum I in Davis et al. 1991). A sample collected nearby from an organic-rich deposit, which seems to correlate with the Folsom “black soil” and the younger Folsom component (f2, stratum 2 in Davis et al. 1991), provided a date of 10,090 ± 50 RCYBP (Beta-159058).

Utilized fauna recovered from the respective Paleoindian components in 2001 are: f1, large mammal rib fragment, cf. Bison sp.; f2, large canid (Canis spp., cf. C. lupus), deer-sized artiodactyl (cf. Odocoileus spp.), rabbit (Sylvilagus sp.), and Bison spp.; and s2, Bison spp. Large canid remains are predominant in f2.

Elsewhere on the Great Plains, Folsom appears to range from ca. 10,900 to 10,300 RCYBP (Haynes 1992, 1995; Haynes et al. 1992). The Folsom-type site, for example, yielded a radiocarbon age of ca. 10,500 RCYBP (Meltzer, Todd, and Holliday 2002). A Folsom-affiliated assemblage at Indian Creek, south of MacHaffie, also in the Elkhorn Mountains, dates within the range of ca. 10,700–10,400 RCYBP (Baumler and Davis 2000; Davis and Baumler 2000). There are some indications that Folsom may extend to ca. 10,200 RCYBP on the Northern Plains and 10,100 RCYBP on the Southern Plains (Holliday 2000). The Alberta and Cody (Eden-Scottsbluff) continuum ranges from ca. 10,000 to 8000 RCYBP (cf. Holliday 2000; Stanford 1999). Radiocarbon dates reported here appear to indicate that Folsom artifacts at the MacHaffie site are contained within muddy sands and sandy mud (the “black soil”) that range in age from ca. 10,500 to 10,100 RCYBP.
Investigations directed by Davis at the MacHaffie site were supported by the Kokopelli Archaeological Research Fund (1986-1999) and the Richard G. Forbis Fund for Paleoindian Research (2000 and 2001) administered by the Museum of the Rockies at Montana State University-Bozeman.

References Cited


