INTRODUCTION

Detailed mapping indicates that the Big Wood River drainage preserves the deposits of at least two Quaternary glaciations. Some of the evidence supporting this conclusion will be presented at Stops 1 and 2.

From its headwaters near Galena Summit (30 miles north of Hailey) the Big Wood River flows south and receives the drainage of several major tributaries including Prairie, Baker, Boulder, Trail, Warm Springs, and East Fork Creeks. Deposits of the older, more extensive glaciation are not well preserved, but they are present in most valleys and can be used to reconstruct the ice distribution in most areas. Deposits of the smaller, younger glaciation are fresh and well preserved, and allow accurate reconstruction of late Pleistocene ice distribution. In all cases, glacial deposits are confined to the tributary valleys; no compound ice lobe flowed south down the Wood River Valley. The northern valleys draining the high areas developed ice lobes that extended as far as the Big Wood River (i.e., Prairie Creek and Boulder Creek). Further south, the glaciers originating in lower and drier areas were restricted to the upper reaches of the tributary valleys (Pearce, in prep.; Scott, 1982).

The current lack of radiometric dates for glacial deposits in this area and for Idaho in general makes a determination of absolute age and accurate correlation with other areas impossible. Therefore, age assignments and correlations are based on relative dating techniques (Burke and Birkseland, 1979; Colman and Pierce, 1986; Evenson and others, 1982).

Until the work of Cotter (1980), most glacial deposits in Idaho were named after, and therefore correlated with, the Rocky Mountain Glacial Model (i.e., “Pinedale” and “Bull Lake”) which was developed for the Wind River Mountains in Wyoming by Blackwelder (1915). We feel that the extension of the Wyoming nomenclature to Idaho is unjustified. Therefore, we have proposed informal stratigraphic names for the deposits of each glaciation in the study area and have correlated this nomenclature to the Idaho Glacial Model (Evenson and others, 1982), which was developed to allow local and regional correlation within central Idaho. The glaciations of the Idaho Glacial Model can in turn be correlated to the Rocky Mountain Glacial Model. The deposits

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mapped in the Big Wood River Valley have been assigned informal local names, which are correlated to the Idaho and Rocky Mountain Glacial Models as shown in Table 1.

Table 1. Nomenclature of the Idaho Glacial Model and correlation with local stratigraphy of the Big Wood River

<table>
<thead>
<tr>
<th>ROCKY MOUNTAIN GLACIAL MODEL</th>
<th>IDAHO GLACIAL MODEL</th>
<th>BIG WOOD RIVER STRATIGRAPHY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pinedale Glaciation</td>
<td>Potholes Glaciation</td>
<td>Boulder Creek Advance I-IV</td>
</tr>
<tr>
<td>Bull Lake Glaciation</td>
<td>Copper Basin Glaciation</td>
<td>Prairie Creek Advance I-III</td>
</tr>
</tbody>
</table>

One of the major problems in mapping Quaternary deposits of the Big Wood River Valley has been the differentiation of Prairie Creek age glacial deposits from older (early Quaternary?) alluvial fan/fanglomerate deposits ("Phantom Hill Gravels" of this study) which were associated with the uplift of the Boulder Mountains. Scott (1982) mapped extensive aprons of poorly sorted alluvial gravel along the Boulder Mountain front. Our detailed mapping confirms many of Scott's (1982) interpretations; however, we think some of his "alluvial fan gravel" is till of the Prairie Creek advance. The two diamictons are similar, having been derived from the same source area. Both may contain boulders and smaller clasts in a fine-grained matrix, and have lobate forms. Striated clasts are undiagnostic because the cobbles and boulders consist mainly of quartzites and volcanics. The quartzites are inherently difficult to striate, and the volcanics weather so rapidly that striations, even in till of Prairie Creek age, are mostly lost. Although striations are occasionally found on fresh clasts of the Prairie Creek till, they are so rare that they cannot be relied upon to differentiate fan gravels from Prairie Creek till.

Other criteria, based on geomorphic and sedimentological evidence, have proven to be much more useful in differentiating these units. In practically all places the fanglomerate sediments (Phantom Hill gravel) are deposited on a bedrock-cored, pedimentlike surface. In some places only a thin veneer of gravel is deposited on bedrock. Also, the gravels are not confined to single valleys, and in many places form divides between tributary valleys. Finally, in the fanglomerate, the larger boulders and cobbles are located close to the mountain front, and grain size decreases downslope. The Prairie Creek till, on the other hand, is restricted to valley sides and bottoms, is not cored by bedrock, and contains very large boulders randomly scattered throughout the deposit. The moraines exhibit a hummocky, commonly kettleted topography unlike the alluvial fans which have a smooth, even profile, except where dissected or mass wasted.

Using the geomorphic criteria discussed above and relative dating techniques, the Quaternary deposits of the Wood River Valley have been mapped, subdivided, named and correlated. Stops 1 and 2 show the type areas for the Boulder Creek and Prairie Creek advances.

LOCALITY DESCRIPTIONS

Stop 1: Type Area of the Boulder Creek Advance

Location

This stop is located 13 miles north of Ketchum on Boulder Creek Road (Figure 1; Figure 1 of Evenson and others, 1988, this volume). To reach the section, turn east (right) from Idaho Highway 75 onto Boulder Creek Road. Follow the road approximately 0.25 mile and take the left fork. From the fork drive another 0.8 mile and take another left fork. From the second fork, drive another 0.5 mile and park at the large boulder next to the road. Ascend the moraine to the crest, and the location shown on Figure 1.

Description and Discussion

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Stop 2: Type Area of the Prairie Creek Advance

Location

From the junction of Boulder Creek Road and Idaho Highway 75, turn north (right) onto Highway 75, drive 6.7 miles and then turn west (left) onto a small turn-off (this is not a true road and is not easily visible). Immediately after turning from Highway 75, park in the ample space. Follow the faint path southwest into a wooded area, ascend a small hill, and continue to a
Figure 1. Surficial geologic map of Boulder Creek area and location of Stop 1.
Figure 2. Surficial geologic map of Prairie Creek area and locations of Stops 2 and 2A.
shallow depression (Figure 2; Figure 1 of Evenson and others, 1988, this volume).

Description and Discussion

This stop is the type area for deposits of the Prairie Creek I-III advances. Moraines of the older advance have subdued morphology. They lack sharp crests, have fewer surface boulders, and are more dissected than the younger Boulder Creek moraines in this drainage. The Prairie Creek moraines are located about one mile down-valley and outside of the deposits of Boulder Creek age (Figure 2). From the pull-off, the path first runs for about 150 yards in a southerly direction on a remnant of Prairie Creek I outwash. The road reaches the head of the outwash and part of the bouldery Prairie Creek I moraine at a curve to the right (west). A relatively well-preserved kettle can be seen along the road about 100 yards to the west of this curve.

Optional Stop 2A: Ice-streamlined Bedrock Knob

Location

Turn south (right) onto Highway 75 and drive 1 mile. Turn west (right) onto Prairie Creek Road. Drive on Prairie Creek Road for about 1.5 miles and turn into the parking area at the base of a large bedrock knob. Walk to the top of the knob. See Figure 2 for the exact location of Stop 2A.

Description and Discussion

The summit of the knob shows ice erosional features (grooves) which are still preserved, although very weathered. The Boulder Creek terminal moraine ends at the base of the knob, showing that during the Boulder Creek advance the ice was not high enough to override the obstacle. Its streamlined shape is therefore a relict of the older and more extensive Prairie Creek glaciation.

REFERENCES


Burke, R. M., and Birkeland, P. W., 1979, Reevaluation of multi-parameter relative dating techniques and their application to the glacial sequence along the eastern escarpment of the Sierra Nevada, California: Quaternary Research, v. 11, p. 21-51.