

George R. Brown Convention Center, Exhibit Hall E

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As the timing, extent, and climate of the last glaciation in the western United States have become increasingly well documented, the record of the Angel Lake Glaciation – the last glaciation in the Great Basin – remains poorly understood despite abundant alpine glacial and pluvial records. Based on field mapping of glacial deposits in the Ruby-East Humboldt Mountains and of lacustrine deposits in the Clover and Independence Valleys in northeastern Nevada, we use a combination of paleo-glacier equilibrium-line altitude (ELAs) reconstructions and mass-balance modeling of glaciers and pluvial Lake Clover to infer paleoclimate during the Angel Lake Glaciation. We find that the Ruby-East Humboldt Mountains were occupied by more than 50 valley glaciers, with ELAs of ca. 2400-2600 m asl and a total ice-surface area of more than 200 km². East of the Angel Lake type locality in the East Humboldt Mountains, pluvial Lake Clover attained a maximum surface area of more than 600 km² with a shoreline elevation of ca. 1720 m asl. Glacier ELAs in the Ruby-East Humboldt Mountains were similar to those in the western Wasatch Mountains, located ca. 300 km to the east and on the downwind side of the Lake Bonneville basin. This situation contrasts with the regional-scale pattern of rising ELA with increasing distance from the Pacific Ocean, suggesting that local-scale variations in climatic controls on glacier balance were significant.

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