NEW ENVIRONMENTAL AND RADIOCARBON EVIDENCE FOR THE AGES OF TWO HOLOCENE LANDSLIDE-DAMMED LAKES IN THE SOUTHERN WASHINGTON CASCADE RANGE, USA

Colleen Suter, Patrick T. Pringle, Centralia College Science Dept., 600 Centralia College Blvd., Centralia WA 98531; Robert L. Schuster, U.S. Geological Survey, retired, Golden, Colorado 80401; colleen.suter ‘at’ student.centralia.edu

We investigated two landslide-dammed lakes in the southern Washington Cascade Range. Glacier Lake, 9 km southeast of Packwood, Washington, is dammed by a rockslide-debris avalanche from Angry Mountain. Pringle and others (1998) reported a radiocarbon age of 660 ±60 yr B.P. (cal 1185–1440 yr CE; 2σ, k=1.6) on a snag rooted in the lakebed ~ 11 m below highest lake level. Owing to missing outer wood, this age represents a maximum. To estimate the rockslide’s minimum age, we cored seven well-established Douglas-firs (Pseudotsuga menziesii) growing on the deposit and evaluated surficial ash layers. Wn ash from Mount St. Helens (CE late 1479) lies atop the rockslide deposit. The oldest tree had ~543 rings; however we adjusted for the time needed for seedlings to germinate and reach the height of the core samples (colonization time gap or CTG). Previous work on CTGs for disturbed areas at Mounts Rainier, St. Helens, and Hood by Pierson (2006) indicated an ecesis time of at least 14 years; thus, a probable minimum age for the Glacier Lake rockslide is ~CE 1455 ± 20 years.

Knupenberg Lake, 2.5 km west of White Pass, Washington, is dammed by a rockslide-debris avalanche from Hogback Ridge. Our new radiocarbon age on a submerged snag in the lake is 1503 ±24 yr B.P. (cal 434–492, 507–519, 528–642 yr CE; 2σ, k=1.6). Dating of landscape disturbances such as landslides is crucial to understanding the environmental and geologic history of a region, particularly that of past earthquakes.

citation: