ABSTRACT

Located within the non-glaciated Salamence Re-entrant, the headwaters of the Driftwood Branch Sinnemahoning Creek bear two recognizable surficial deposits: periglacial derived boulder-choked hollows, and Holocene-aged alluvium. In the headwaters of several hollows, large boulders of Pottsville Formation-derived sandstone and conglomerate sit in the silt bottom. These boulder fields commonly can be traced straight to the headrock source on the top of the mountains. Though more thorough geologic mapping is needed to confirm, it appears that in some hollows the Pottsville Formation has been completely eroded away, leaving only the boulders as remnants.

Alluvial cuts along the main valley bottom bear alluvial exposures less than 40 feet thick, and water with riparian vegetation show alluvial deposits less than 40 feet thick. In the main valley bottom, the alluvium is a moderate yellow-brown to pale brown silt; underfoot this silt is a mottled light-olive-gray and grayish orange clayey silt ranging from approximately 0.5 to 1.7 feet thick. In the base of the mottled silt horizon, woody debris is commonly observed. Radiocarbon dates from two samples along the Driftwood Branch Sinnemahoning Creek are 605 ± 15 years BP and 2753 ± 20 years BP. The wide range of ages suggests that the mottled silt lithology is not unique to a single stratigraphic horizon or erosion of older stream deposits but rather a combination of both.

The radiocarbon dating of the alluvium deposits along the modern stream channels show the deposits in the Rich Valley quadrangle are Holocene-aged alluvium that simply reworked woody debris from older stream channel deposits. Additional radiocarbon testing of different woody debris samples from the headwaters of Moon Run, North Creek, and Driftwood Branch Sinnemahoning Creek will be conducted by the author to determine their Holocene age.

The radiocarbon dating of the alluvium deposits in the Driftwood Branch Sinnemahoning Creek is 605 ± 15 years BP and 2753 ± 20 years BP. The wide range of ages suggests that the mottled silt lithology is not unique to a single stratigraphic horizon or erosion of older stream deposits but rather a combination of both. In the headwaters streams of Moon Run and Cross Run, similar looking mottled silt has been identified as a very young age of 90 ± 15 years BP. These headwater deposits correlate well with historical logging operations in the county. R-ray dating of the mottled silt in the alluvial fan sediments is more consistent with mineral concentrations of kaolinite, olivine, clays, and mica.

THE PRE-HISTORIC AND HISTORIC GEOLOGIC IMPACTS OF ICE AND WATER WITHIN THE PA WILDS: A STUDY OF THE SURFICIAL DEPOSITS IN THE RICH VALLEY 7.5-MINUTE QUADRANGLE, CAMERON COUNTY, PENNSYLVANIA

Aaron D. Bierly, aabierly@pa.gov, Dept. of Conservation and Natural Resources: Pennsylvania Geological Survey

Introduction

The objective of this study is to interpret surficial deposits that appear to be Holocene in age. The goal of this presentation is to discuss the characteristics and details of these surficial deposits. After more careful analysis of these deposits, it appears the most accurate method to determine their Holocene age is radiocarbon dating.

Conclusion/Further Work

The radiocarbon dating of the surficial deposits along the modern stream channels shows the deposits in the Rich Valley quadrangle to be Holocene and have been impacted by human activity over the last 1500-2000 years. Additional radiocarbon testing of different woody debris samples from the headwaters of Moon Run, North Creek, and Driftwood Branch Sinnemahoning Creek will be conducted by the author to determine their Holocene age.

Acknowledgements

The author would like to acknowledge John Barnes for his XRD analysis of the alluvial samples. Cameron County Historical Society for their assistance in the logging history of the study area.

The radiocarbon dating of the surficial deposits in the Rich Valley 7.5-Minute Quadrangle, Cameron County, Pennsylvania is 605 ± 15 years BP and 2753 ± 20 years BP. The wide range of ages suggests that the mottled silt lithology is not unique to a single stratigraphic horizon or erosion of older stream deposits but rather a combination of both. In the headwaters streams of Moon Run and Cross Run, similar looking mottled silt has been identified as very young age of 90 ± 15 years BP. These headwater deposits correlate well with historical logging operations in the county. R-ray dating of the mottled silt in the alluvial fan sediments is more consistent with mineral concentrations of kaolinite, olivine, clays, and mica.

THE PRE-HISTORIC AND HISTORIC GEOLOGIC IMPACTS OF ICE AND WATER WITHIN THE PA WILDS: A STUDY OF THE SURFICIAL DEPOSITS IN THE RICH VALLEY 7.5-MINUTE QUADRANGLE, CAMERON COUNTY, PENNSYLVANIA

Aaron D. Bierly, aabierly@pa.gov, Dept. of Conservation and Natural Resources: Pennsylvania Geological Survey

Introduction

The objective of this study is to interpret surficial deposits that appear to be Holocene in age. The goal of this presentation is to discuss the characteristics and details of these surficial deposits. After more careful analysis of these deposits, it appears the most accurate method to determine their Holocene age is radiocarbon dating.

Conclusion/Further Work

The radiocarbon dating of the surficial deposits along the modern stream channels shows the deposits in the Rich Valley quadrangle to be Holocene and have been impacted by human activity over the last 1500-2000 years. Additional radiocarbon testing of different woody debris samples from the headwaters of Moon Run, North Creek, and Driftwood Branch Sinnemahoning Creek will be conducted by the author to determine their Holocene age.

Acknowledgements

The author would like to acknowledge John Barnes for his XRD analysis of the alluvial samples. Cameron County Historical Society for their assistance in the logging history of the study area.

The radiocarbon dating of the surficial deposits in the Rich Valley 7.5-Minute Quadrangle, Cameron County, Pennsylvania is 605 ± 15 years BP and 2753 ± 20 years BP. The wide range of ages suggests that the mottled silt lithology is not unique to a single stratigraphic horizon or erosion of older stream deposits but rather a combination of both. In the headwaters streams of Moon Run and Cross Run, similar looking mottled silt has been identified as very young age of 90 ± 15 years BP. These headwater deposits correlate well with historical logging operations in the county. R-ray dating of the mottled silt in the alluvial fan sediments is more consistent with mineral concentrations of kaolinite, olivine, clays, and mica.