

2002 Annual Report
A Continuing Investigation of the Eocene Palynoflora of the Yancey Creek Drainage Basin,
Yellowstone National Park, Wyoming
Jorstad, Robert B., Stefos, M, and Chesner, C.A.
March 31, 2003

The purpose of this study is to gain an understanding of the floristics, paleoecology, and paleoclimate of the Eocene Sepulcher Formation in northern Yellowstone National Park. This goal is to involve the participation of undergraduate geology majors in the actual research and presentation of the findings.

During the June 2002, some of the students from Eastern Illinois University Geology Field Camp under the supervision of the primary investigator walked in to the Yancey Creek drainage basin and collected six small rocks for palynological analysis. The rocks were taken from an outcrop in the streambed west of Lost Lake

The volcanoclastic rock samples, from the Eocene Sepulcher Formation, are being processed using standard acetolysis techniques for palynological study in the Eastern Illinois University Geology/Geography Department where the microscope slides containing any recovered palynomorphs will reside. The Sepulcher Formation consists of sedimentary interbeds between volcanic members of the Absaroka Volcanic Supergroup. The Sepulcher deposits (53-49 my, Hiza, 2000) are significantly pre-date the Huckleberry Ridge Tuff (2.0 my), Lava Creek Tuff (600 ky), and the Mesa Falls Tuff (1.3 my) associated with the major caldera forming events in the park. Sedimentological examination of the volcanoclastic rocks may yield limited insight into the depositional environment in the park during the Eocene.

Table 1. List of palynomorph taxa found in the Eocene Sepulcher formation at Yancey Creek, Yellowstone National Park, Wyoming.

<u>Taxa</u>	<u>Common Name</u>
<i>Sphagnum</i>	peat moss
Polypodiaceae	fern
<i>Picea</i>	spruce
<i>Abies</i>	fir
<i>Pinus</i>	pine
Spagnaceae	peat moss
Nymphaea	water lily
<i>Acer</i>	maple
<i>Quercus</i>	oak
<i>Genmcanadense</i> (Rosaceae)	Canadian arens
<i>Carya</i> (Juglandaceae)	pecan
<i>Carya</i> (Juglandaceae)	water hickory
<i>Celtis</i> (Ulmaceae)	hackberry
<i>Prunus</i>	chokecherry
<i>Chamaecyparis/Cupressus</i>	cedar/cypress
<i>Betula</i>	birch
<i>Fagus?</i>	beech

These findings are consistent with those of previous workers. The total number of identified grains at this time is insufficient to make any reliable paleoclimatic or ecological interpretations. Initial impressions certainly suggest the presence of a mixed coniferous-deciduous forest during the Eocene. This project is ongoing with samples collected during the

summer of 2001, more samples were collected during the 2002 field season and are undergoing preparation and analysis.