SCANNING ELECTRON MICROSCOPY
AS A TOOL IN UNDERSTANDING
HEMLOCK WOOLLY ADELGID
BIOLOGY, FEEDING BEHAVIOR,
AND HOST PLANT RESISTANCE

K.L. Oten, J.B. Strider, and F.P. Hain
North Carolina State University, Department
of Entomology, Raleigh, NC 27695

ABSTRACT

Using scanning electron microscopy, details
surrounding feeding mechanisms of the hemlock
woolly adelgid (Adelges tsugae Annand) are studied in
detail. Stylet bundles are inserted on the adaxial side of
the hemlock needle, between the abscission layer and
the stem and needle cushion junction. Sheath material,
a gel-like material made by the salivary glands, is
produced to surround the stylets. It is observed on
the surface of the host plant and is known to be used
internally. Sheath material is similar in size and form
to fungal hyphae (also found on the host), but can
be distinguished by the bead-like appearance. Future
studies will include analysis of resistant and susceptible
hemlock species and more investigation into sheath
material presence, location, and function.