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YEAR-END REPORT

STUDY OF THE ECOLOGY OF THE SPRUCE -
FIR - BIRCH FOREST TYPE OF ISLE
ROYALE NATIONAL PARK

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Submitted by

Robert A. Janke
Project Chief Investigator

Randall Raymond's research has been primarily concerned with the pre-settlement fire history of Isle Royale's forests. His work is about one third completed. He will continue with more field work during the summer of 1974 and with laboratory and data analysis during the 1974-75 academic year. Until all of the data is analyzed, any conclusions drawn would be premature. However, in the process of analyzing the various layers of sediments from the several lakes at different elevations that were bored, he was able to establish some interesting geological relationship. These linked the sediments with the various stage of Lake Superior. Of particular interest was evidence supporting the existence of the controversial Houghton stage of Lake Superior. A manuscript describing these results was submitted for publication to the Michigan Academy of Science. A copy of this manuscript is included with this report.

Another successful summer of field work was carried out during the summer of 1973 on Isle Royale. The research crew, all from the Michigan Technological University, consisted of Robert A. Janke, chief investigator, Steven G. Shetron, and Martin F. Jurgensen, project soil experts, James de Waal Malefyte, Sandra de Waal Maletyte, and Randall Raymond, graduate students and Robert Aho, an undergraduate field assistant. Details of the summer field activities are described in the progress report dated October 20, 1973.

Shetron and Jurgensen continued the taxonomic description of soil profiles for the various study stands that have been used in this project. Their results for this year are summarized in a separate report which is included with this one. It is essentially a supplement to their report of the previous year which was submitted to the National Park Service on June 9, 1973. This represents the first attempt in the history of research on Isle Royale to describe in detail and to classify Isle Royale soil profiles.

James de Waal Malefyte did his master's degree thesis research in the relationship between moose, red squirrels, and snowshoe hares and the various post-fire seral stages of succession. This work, now completed, not only emphasizes how three of Isle Royale's most important herbivores are related to the fire history of the forests, but also points out some interesting relationships which these animals have with each other. This research is described in a master's thesis, a copy of which is enclosed with this report.

Sandra de Waal Malefyte studied the ecology of thimbleberry (Rubus parviflorus). Her work is of considerable interest to the Park Service, not only because this is Isle Royale's most ubiquitous shrubby ground cover but because its presence seems to be very closely related to fire. Her work is completed and her results are summarized in a masters thesis a copy of which is included with this report.