C-2 Impacts of Acid Deposition on Natural Ecosystems

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Key Words *Cryptomeria japonica,* fish, Yakushima Island, *Armillaria mellea*

From April 1993 to March 1996 following studies were carried out to clarify the impacts of acid deposition on the trees (*Cryptomeria japonica*), fish, microorganisms and soils on Yakushima Island and mountain areas of the northern Kanto area.

Studies were also carried out on the biological and chemical processes in the laboratory and on naturally acidic environments to understand the tolerance and impact of acidic substances on the organisms and acidification processes within natural ecosystems.

[1] Impacts of Acid Deposition on Plant-Environment Systems

(1)pH Distribution in radial sections of the stem and root of *Cryptomeria japonica* (2)Effect of acids on the growth and germination of *Armillaria mellea* (3)Potential factors responsible for the decline of Japanese cedar (*Cryptomeria japonica*) in urban areas (4)Behavior of mineral elements in soil-plant system under the impact of acidification (5)Estimation of the influence of plant growth on the soil acidification (6)On the possibility of calcium deficiency in granite bedrock areas on Yakushima Island (7)Surface alteration of mica during acid dissolution (8)Studies on behavior of aluminum in soil and its chemical speciation (9)Estimation of short and long term effects of acid rain by observation of mountainous river waters in Yakushima Island (10)Degradation of chlorophyll by nitrogen dioxide generated from nitrite by the peroxidase reaction (11)Evaluation of acidic deposition onto the forest canopies – Study on the method of estimating dry deposition and leaching rate dividedly –

[2] Studies on the Indication Organisms in Relation to Acidification of the Environment

(1)Studies of the effect of environmental acidification on bryophytes and lichens (2)Studies of the impact of environmental acidification on soil microorganisms (3)Effects of acidification on fishes (4)Effects of low pH exposure of adult salmonids on gametogenesis and embryo development

[3] Studies on Dynamics of Manganese in Woody Plants on Acid Soils

(1)Studies on dynamics of Mn in woody plants on acid soils (2)Nutritional characteristics in leaves of plants grown in the low pH soils

[4] Studies on the Decline of Mountain Forest and Acid Deposition

(1)Studies on the decline of mountain forest and acid deposition