

SOLVING THE NOAH'S ARK PROBLEM TO PRESERVE BIODIVERSITY

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ABSTRACT. Weitzman(1998) introduced the Noah's Ark Problem as an economic issue with a budgetary constraint and gave ranking criterions about what species should be preserved. This paper presents alternative solutions to this issue by proposing ranking criterions which could fully capture the total value of the species with and without a budgetary constraint. The Characteristics/Capabilities Approach based on the theories of Gorman-Lancaster and Sen is used to propose these criterions. Weitzman's four concepts of direct utility from species, their distinctiveness, survival probability increase and protection cost are replaced. I introduce a *national happiness function* with biodiversity under *regional warming*, the *genetic distance*, a *measure of extinction* and a *marginal preservation cost*.

Key Words: biological ranking criterions, endangered species, genetic attributes, genetical distance, measure of biodiversity, measure of extinction, national happiness function, regional warming, transgenerational biological marginal willingness-to-pay

JEL Classification: Q2, Q3

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