

Problem Set 3, part 2, due Nov. 15

Introduction to Environmental and Resource Economics, November 8, 2006

1. Sasha and Chris share a small peat bog, from which they harvest peat moss, which they add to their gardens in order to improve their soil. Because of its slow regeneration rate, peat can be considered a non-renewable resource. Their yearly demand for peat is given by:

$$10 - Q$$

where Q is the quantity of peat. They can harvest peat at a constant marginal cost of \$4. They have a two-year time horizon, and a discount rate of 10%.

- (a) If the supply of peat is not limited, how much will be harvested in each year?
- (b) Sasha and Chris discover that the supply is limited to 10 units. How much peat should they optimally harvest each year? At this level, what is their Hotelling or scarcity rent? Why is it higher for year 2 than for year 1?
- (c) How does their optimal peat consumption change over time? Why?