

# Liming of forest soils – turning talk into action in Sweden

## High acidity in runoff waters...

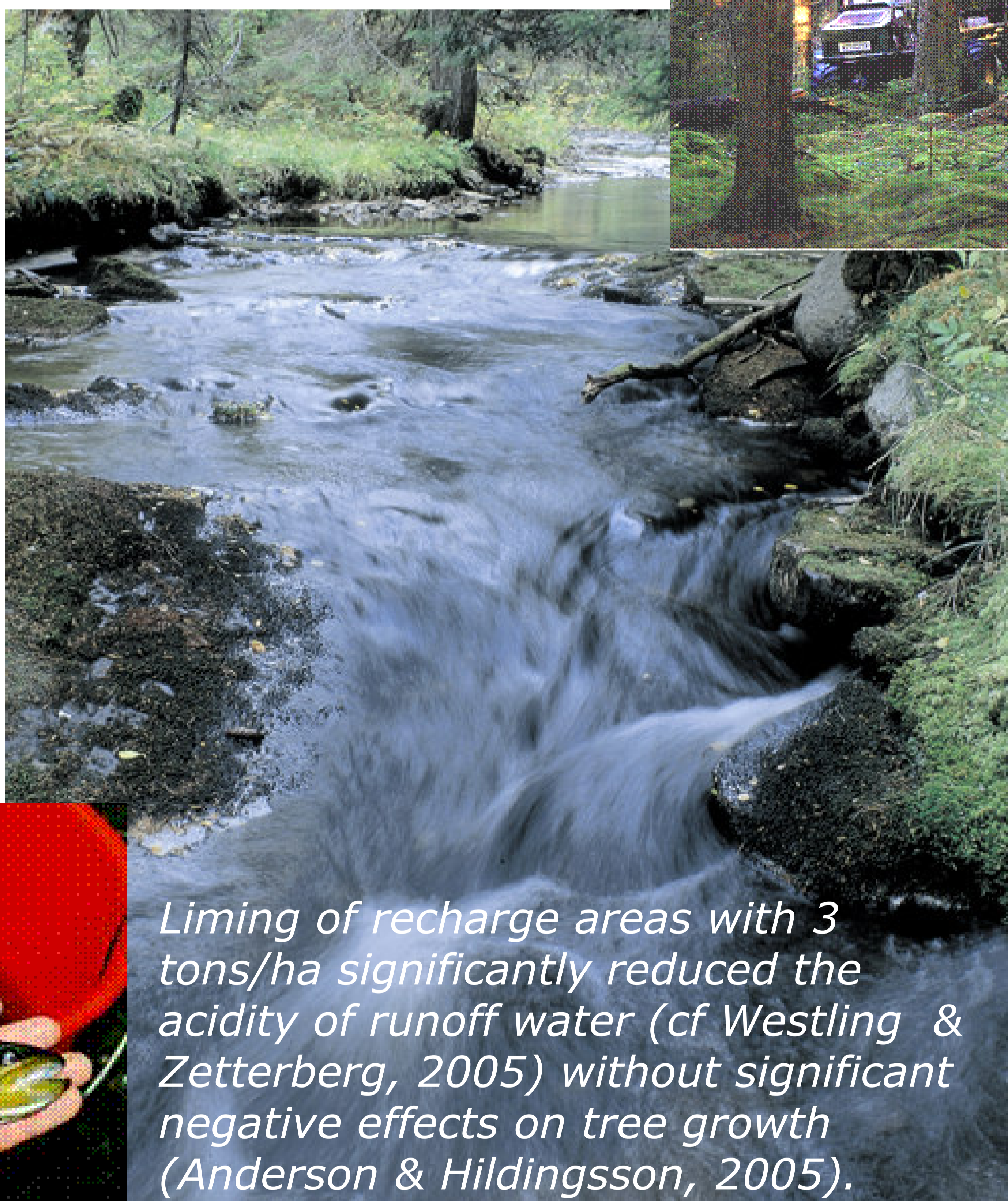
Model simulations show that strongly acidified forest soils (0,3-0,5 million ha) in SW Sweden will continue to deliver acid runoff water with low pH and high  $Al^{3+}$  concentrations for many decades ahead unless measures are taken.

Low pH and high  $Al^{3+}$ -concentrations in stream water cause:

- reduced biodiversity (e.g. no reproduction of brown trout)
- increased mobility of heavy metals.



Wood ash application



Liming of recharge areas with 3 tons/ha significantly reduced the acidity of runoff water (cf Westling & Zetterberg, 2005) without significant negative effects on tree growth (Anderson & Hildingsson, 2005).



Brown trout (*Salmo trutta*)

## Positive results

This semi-practical program was preceded by a 14-year long trial program. Results showed that in case both recharge and discharge areas are limed, positive effects could be immediate as well as long-term.

## ...is lowered by lime and wood ash application on recharge areas

A 3-year semi-practical program for counteracting soil acidification in south-west Sweden started in May 2005, funded by the EPA and conducted by the Forest Administration. Level of stream water acidification will determine which areas are prioritised.

A few thousand hectares covering recharge areas of 3-4 streams will be treated each year at a cost of circa 0,65 million € per year.

Hardened wood ash (3 tons dw/ha) will be applied in stands where land-based application is possible (at the cost of the ash producer) while crushed limestone (3 tons dw/ha) will be applied on remaining areas by a helicopter.

Effects on water chemistry and biodiversity will be monitored. Other program part supports prolonged monitoring of recharge areas that were limed in 1991, and other related research.