WOODLANDS FOR DRINKING WATER:

THE VALUE OF FOREST SERVICES

"You could do worse but it costs more"

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FORESTS PROTECT WATER QUALITY, AND FORESTERS CAN HELP TO PRESERVE IT.

Forests protect water

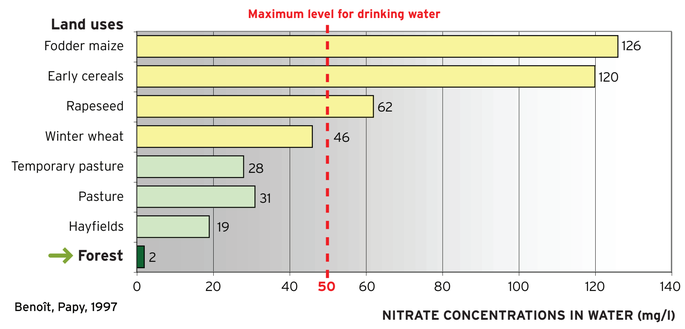

Fig. 1: Nitrate concentrations in water in the rooting zone (at a depth of 1.10 m) for different types of land uses in Lorraine.

The most significant effect of forests on water quality become apparent relatively to other potentially more harmful land uses.
To give an idea for nitrates (fig. 1) and herbicides:

Herbicides are used 450 times more frequently[3] for cereal crops than in forests.

How foresters can help to protect water

The high overall standard of woodland water does not necessarily mean that its quality remains constant. Woodlands help to protect water resources, but they have to be cared for to make their protective role as effective and enduring as possible (Ferry, 2004).

TECHNICAL AND ECONOMIC REFERENCES
LOCAL AUTHORITIES CAN PROVIDE FUNDING TO ADAPT WOODLAND MANAGEMENT ABOVE WATER CATCHMENTS


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The site at Masevaux city (Upper Rhine) is a good example of how woodland management can be adapted to protect mountain spring catchments. This example shows that a municipality can provide funding for preventive action in woodlands to protect its water catchments.

Forestry activities dedicated to drinking water protection	Additional management cost
- clearing brash above water catchments - cable logging of windthrown trees - biodegradable chainsaw oil - more use of cables for felling - "woodsman kits" to deal with accidental pollution	**33 €**/ha/year
- recommendations as above with cable logging in general use in protection areas around water catchments	**75 €**/ha/year

Cable logging is now in general use in catchment protection areas in Masevaux city.

TECHNICAL AND ECONOMIC REFERENCES
CREATING WOODLANDS TO PROTECT WATER


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A woodland planting to protect a water catchment near Rennes.

Many local authorities have already been **investing in woodland plantings** in zones that are especially vulnerable to pollution.

The Rennes municipality has carried out an exemplary project, creating over 70 ha of woodland around one of its water catchments. The cost of establishing these woodlands amounts to 6 300 € / ha (14 700 € / ha including land purchase). The project has lowered nitrate concentrations in surface waters, avoiding the potentially high cost of changing the catchment.

THE VALUE OF WOODLAND WATER FOR HOUSEHOLDS

More woodland = cheaper water

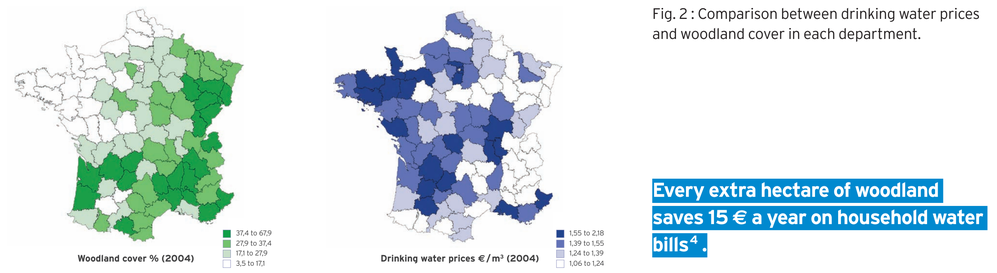

Fig. 2 : Comparison between drinking water prices and woodland cover in each department.

Every extra hectare of woodland saves 15 € a year on household water bills[4].

This is the lowest saving in the range estimated by our model. The impact should be greater in studies on the most sensitive areas producing drinking water.

We made a nationwide study with data for each department. The purpose was to measure the overall impact of woodlands on the quality of water before it is treated to make it fir for drinking, in comparison with the impacts of other land uses. Our study confirms that larger wooded areas are linked with better quality of untreated water and lower drinking water prices (fig. 2).

Households value the natural image of woodland water

Households are willing to pay up to 50 € a year extra to have, or to keep, tap water from woodland sources.


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People believe wrongly that drinking water comes from treated wastewater.


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High-quality drinking water from the start, thanks to our woodlands.

This study aims to identify the "trust factor" among households as regards woodland water. We assessed what households are willing to pay for "natural" water (with a minimum of treatment) from woodlands.

The method is based on household surveys, which we conducted among two sample populations. The first receives water from woodland sources, the second receives water pumped from a river

Our results show that **providing water from woodland sources is a real asset for water suppliers.**

Promoting the positive image of woodland water is clearly worthwhile.

CONCLUSIONS

Actually, there are two clear messages from these economic assessments:

"You could do worse, but it costs more..."

This sums up the correlation between larger wooded areas, better quality of untreated water and lower water prices, and also reflects the value for households of natural drinking water from woodland sources.

"The fact that water quality is usually good doesn't mean nothing needs to be done"

Water suppliers expect foresters to take precautions when working around vulnerable water catchments. Doing so under contract could help to meet these expectations.

What comes next?

Proposal and test of a contract model between foresters and a water producer.

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3. Based on treatment frequency indexes: number of standard doses applied to a plot during one agricultural season. Sources: IDF from Gama et al. 2006 – Ecophyto R&D 2010).
4. This saving is not calculated per household but from the aggregated water bill for all domestic users.

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