Multipurpose Forestry an option for the future?

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Multipurpose forestry

Multipurpose forestry combines various ecological, economic and social objectives:

- **goods:** timber, non-wood forest products, water

- **ecosystem services:** maintaining soil fertility, carbon sequestration, biodiversity, recreation, etc.

Multipurpose forestry

Ecological purposes:

Protective function:

- forest resistance and resilience
  - *site adapted tree species, species mixture*
- soil fertility
- water quality
- biodiversity
- carbon sequestration
  - *long lasting cutting cycles*
  - *small scale cuts*
  - *single tree management*

Multipurpose forestry

Economic purposes:

Production function:

- high forest productivity
  - *tree species selection*
- increasing market value
  - *tree selection (selective thinning)*
  - *adequate thinning regime*
  - *pruning*
- reducing cost
  - *using natural processes*
- economic efficiency
  - *emphasizing measures that increase value*

Multipurpose forestry

Social purposes:

- employment in rural areas
- recreational value in urban areas
- cultural values

Multipurpose forestry

The relevance of the purposes depend on the specific local condition:

- ecological conditions
  vulnerability, site productivity, specific ecological values
- economic conditions
  accessibility, distance to markets
- social conditions
  urban/rural areas
  specific cultural values

Multipurpose forestry

The relevance of the purposes may change over time:

- increasing shortage of wood resources
  - ⇨ increase quantity and quality wood
- increasing salaries
  - ⇨ less intensive management by using natural processes
- Urbanisation
  - ⇨ higher recreational values
  - ⇨ higher cultural values

Forest management intensity

“Unmanaged forest nature reserve”

Forest management intensity

“Multipurpose Forest”

Forest Management Approach

“Multipurpose Forest”

Forest management intensity

“Multipurpose Forest”

Forest management intensity

Multipurpose
Forest close to Beijing

Forest management intensity

Multipurpose
Forest close to Pingxiang

Forest management intensity

Multipurpose
Forest close to Pingxiang

Multipurpose forestry

Multipurpose Forest

close to Pingxiang

Multipurpose forestry

Multipurpose Forestry

Forest management intensity

“Intensive even-aged forestry”

Multipurpose forestry

Plantation Forestry Cunninghamia lanceolata

Multipurpose forestry

Plantation Forestry Cunninghamia lanceolata

Forest management intensity

“Short rotation forestry”

Multipurpose forestry

Cultural value

Multipurpose forestry

Cultural value

Forest management intensity

Passive: “Unmanaged forest, nature reserve”

Medium: “Multipurpose forestry”

Intensive: “Short rotation forestry”

Intensity of intervention in natural processes

Forest Management Approach

What is the most appropriate management approach?

The decision depends on:

- site conditions (productivity, ecological conditions)
- state of the forest (long transition phases!)
- the infrastructure (access, machinery, etc.)
- the location
  - distance to the market
  - distance to densely populated areas

Forest Management Approach

Example 1:

Productive site, no forest cover, easy accessible, short distance to the market, no special ecological values and risks, no high cultural value:

⇨ Short rotation plantation

Forest Management Approach

Example 2:

Secondary forest, far distance to the market:

⇨ Multipurpose forest, producing valuable wood.

Multipurpose forestry

“Secundary Forest”

Forest Management Approach

Example 3:

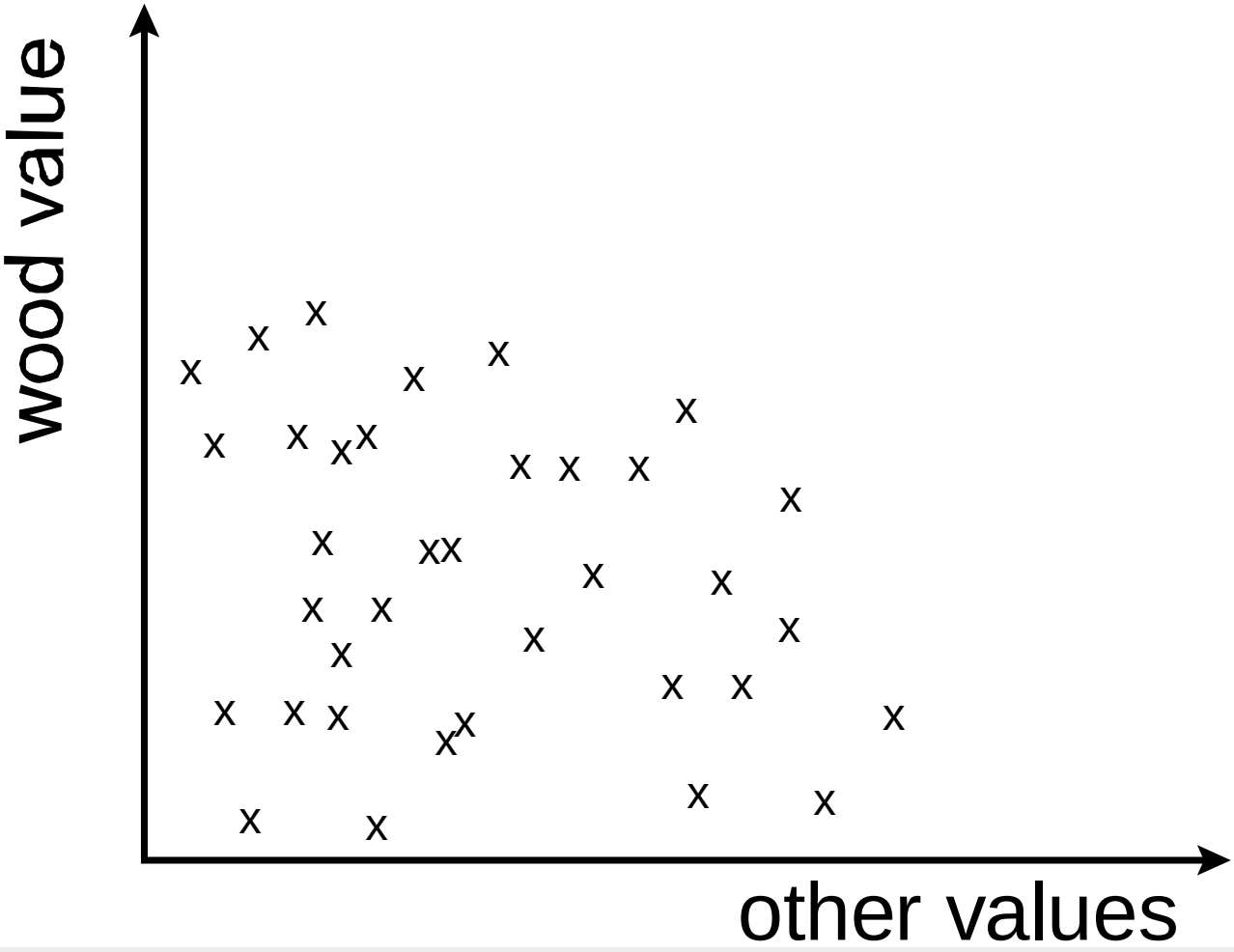
Old growth forest of extraordinary ecological value:

⇨ Protected forest

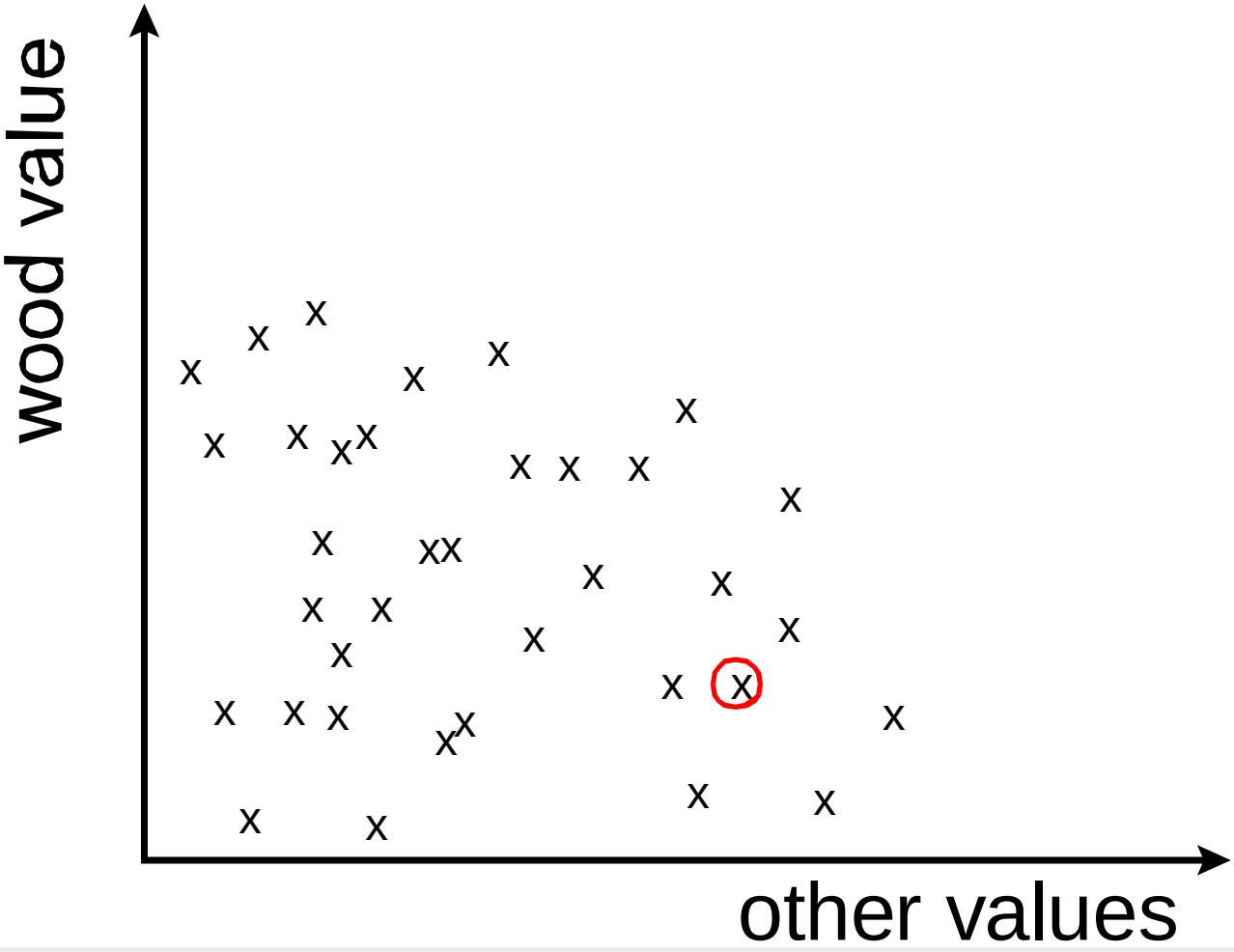
Forest Management Approach

How to select the best management option?

Selection of the management options



Selection of the management options



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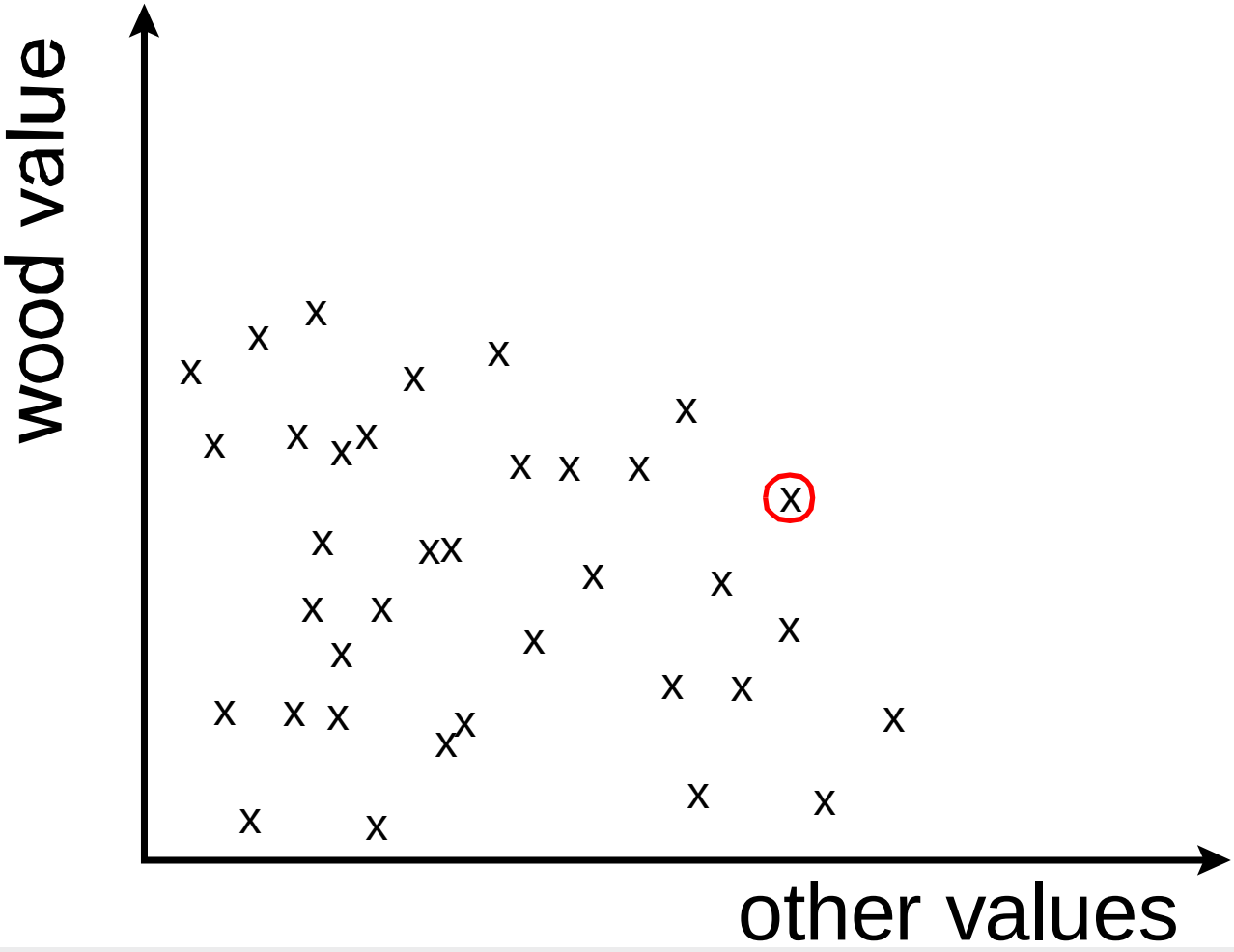

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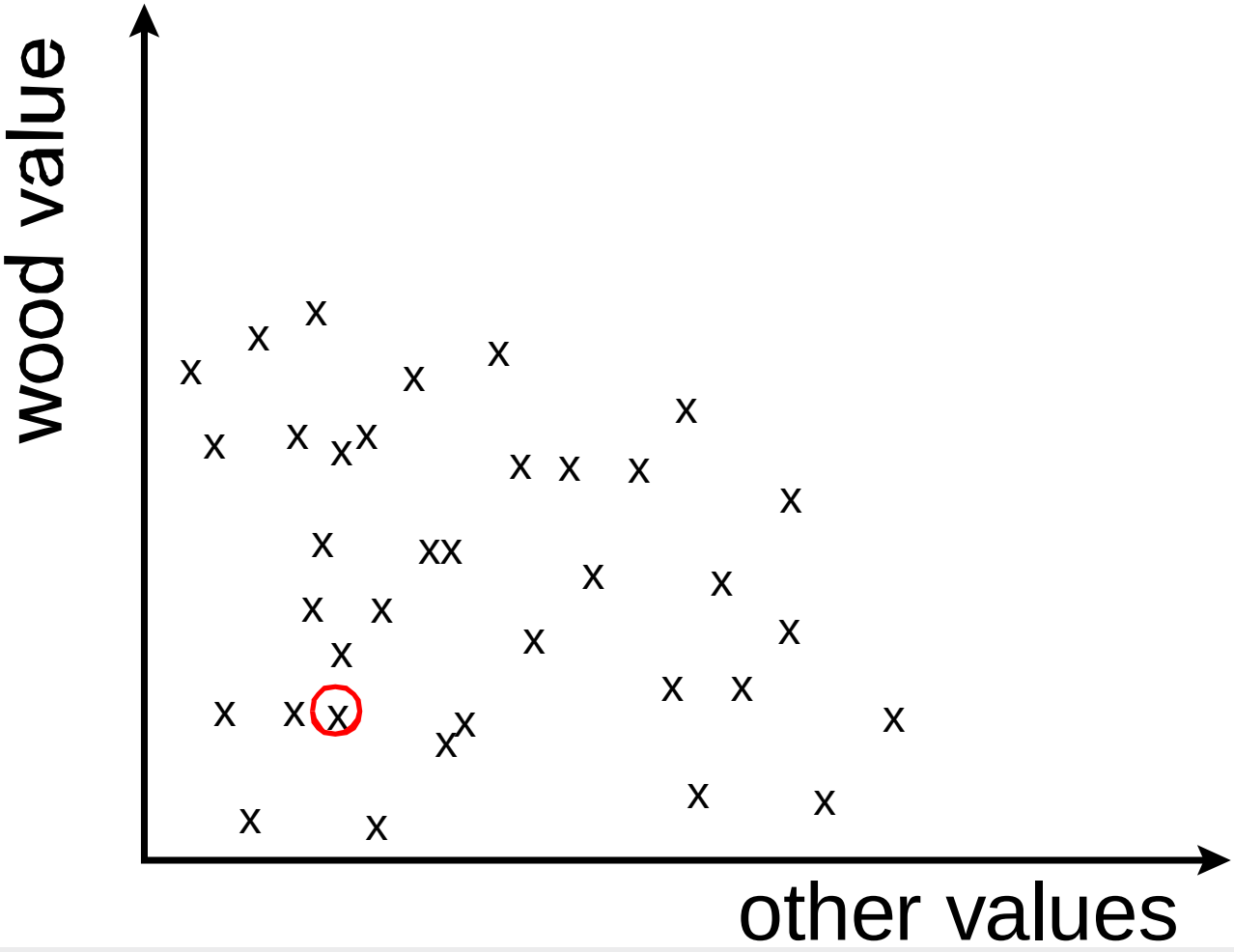

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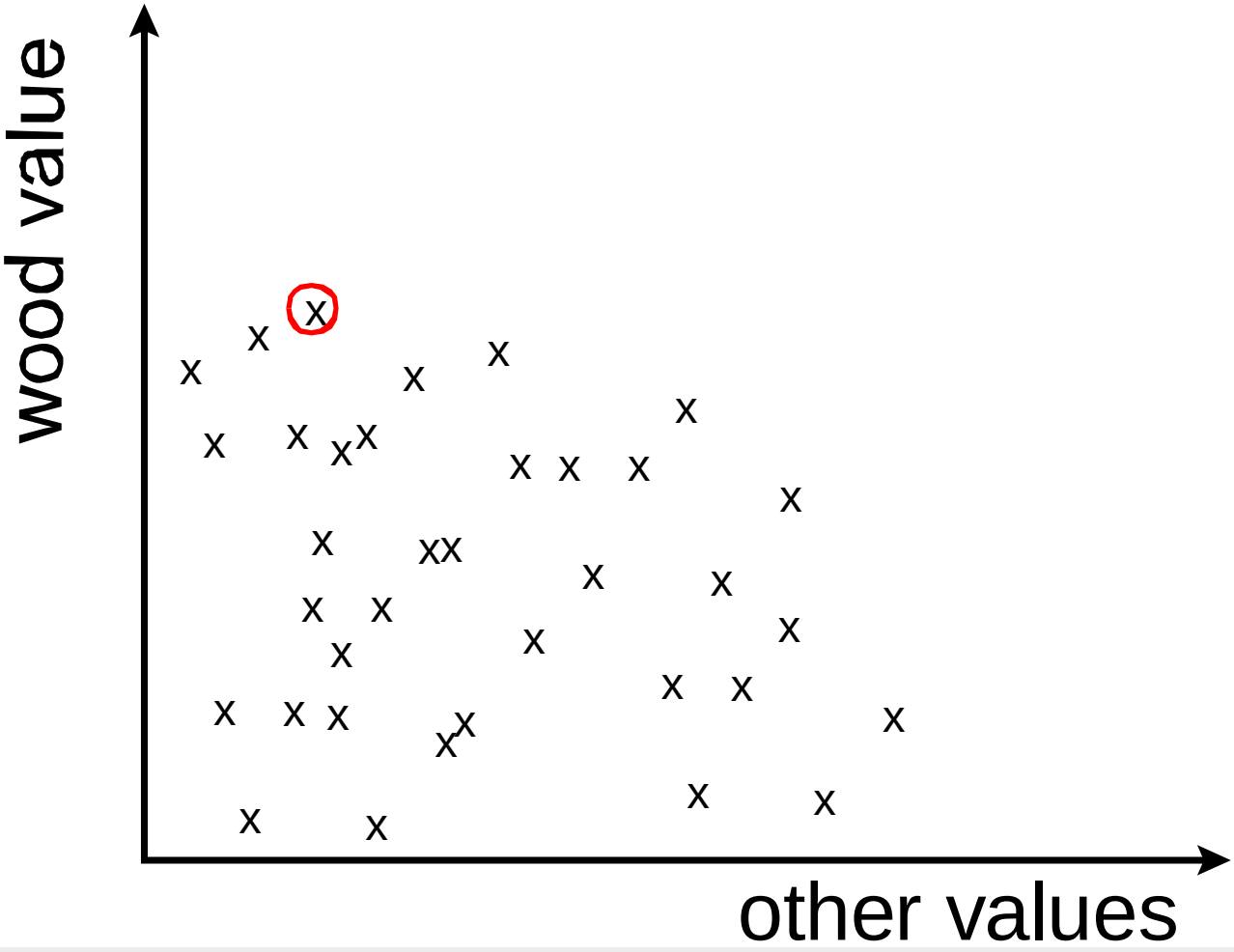

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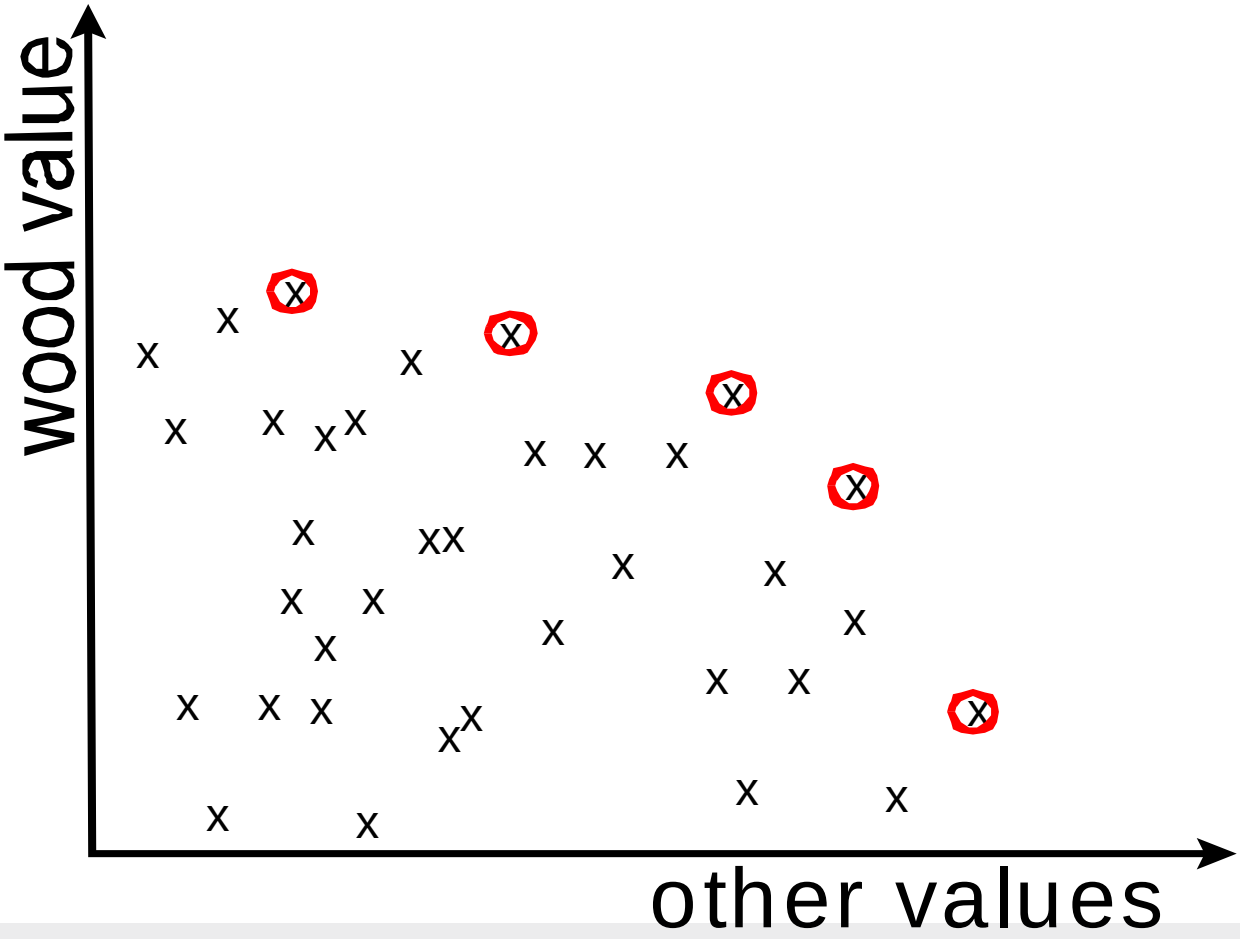

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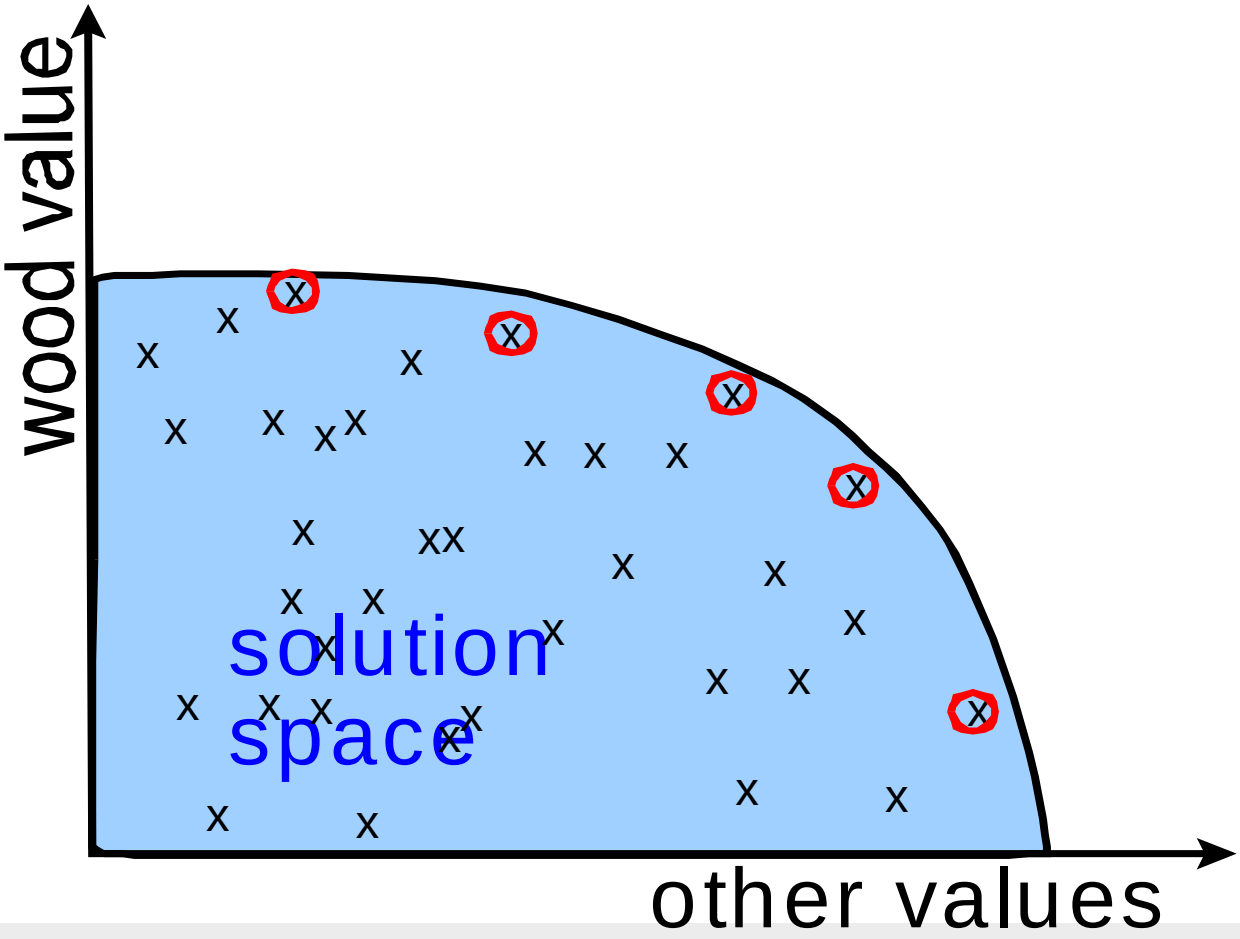

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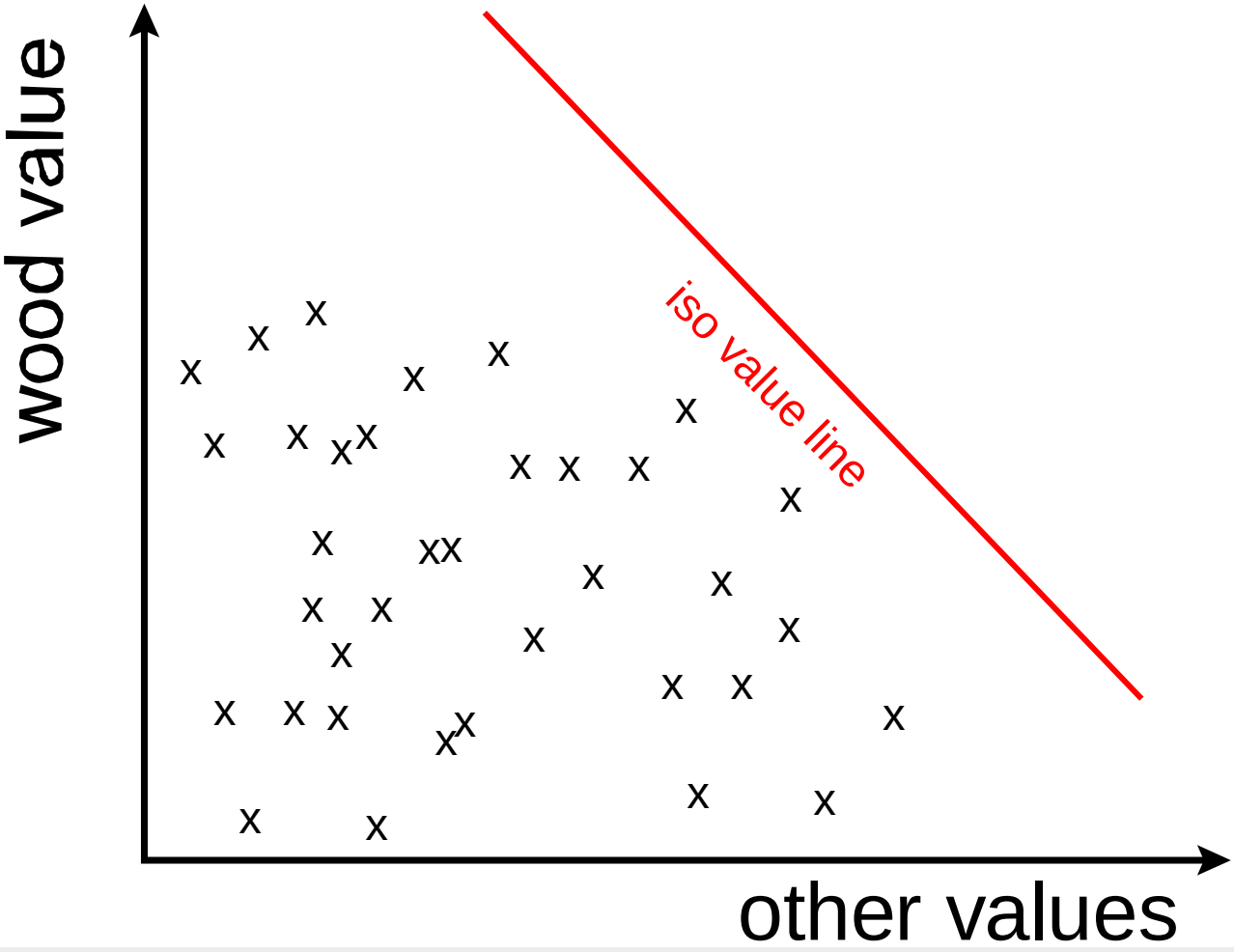

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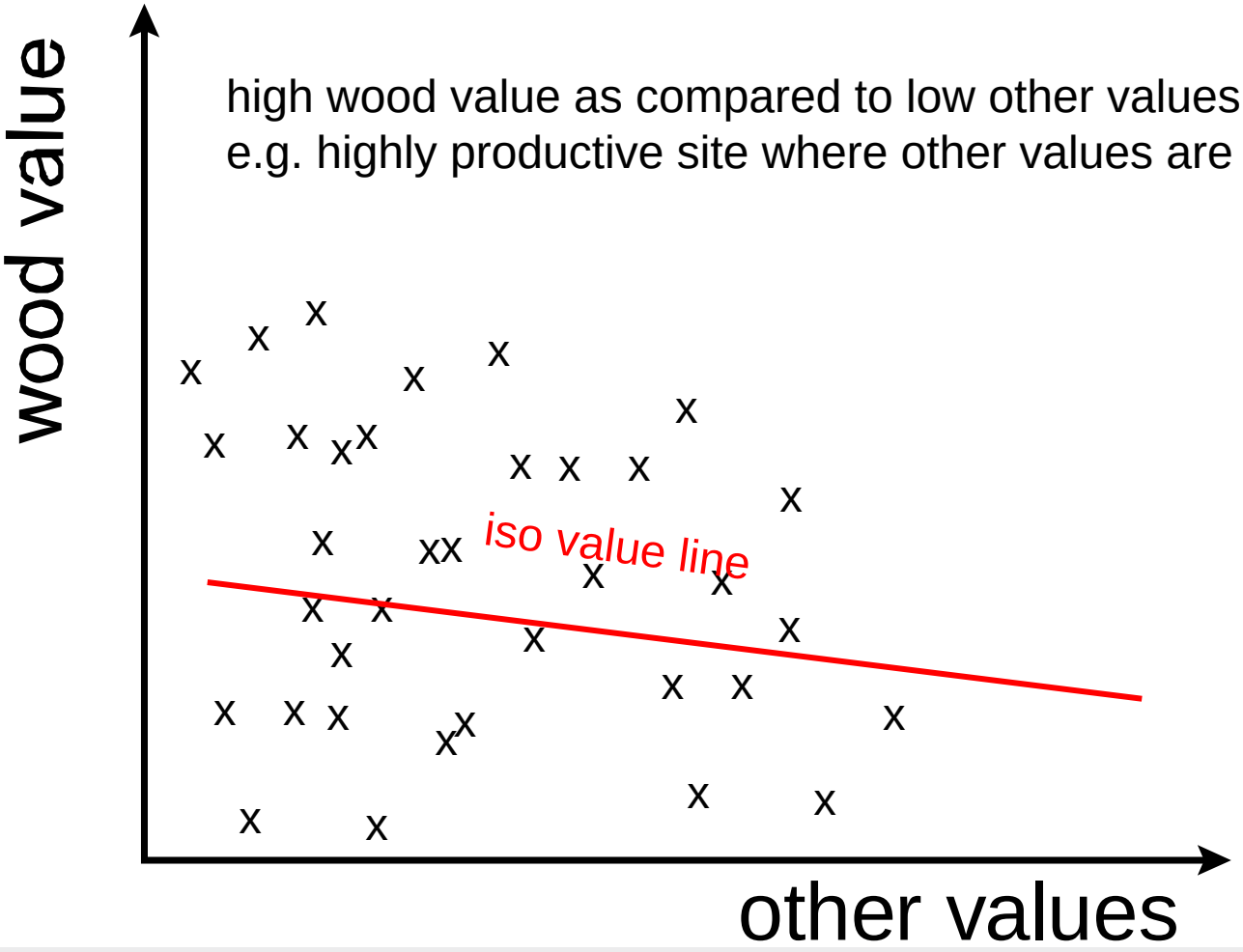
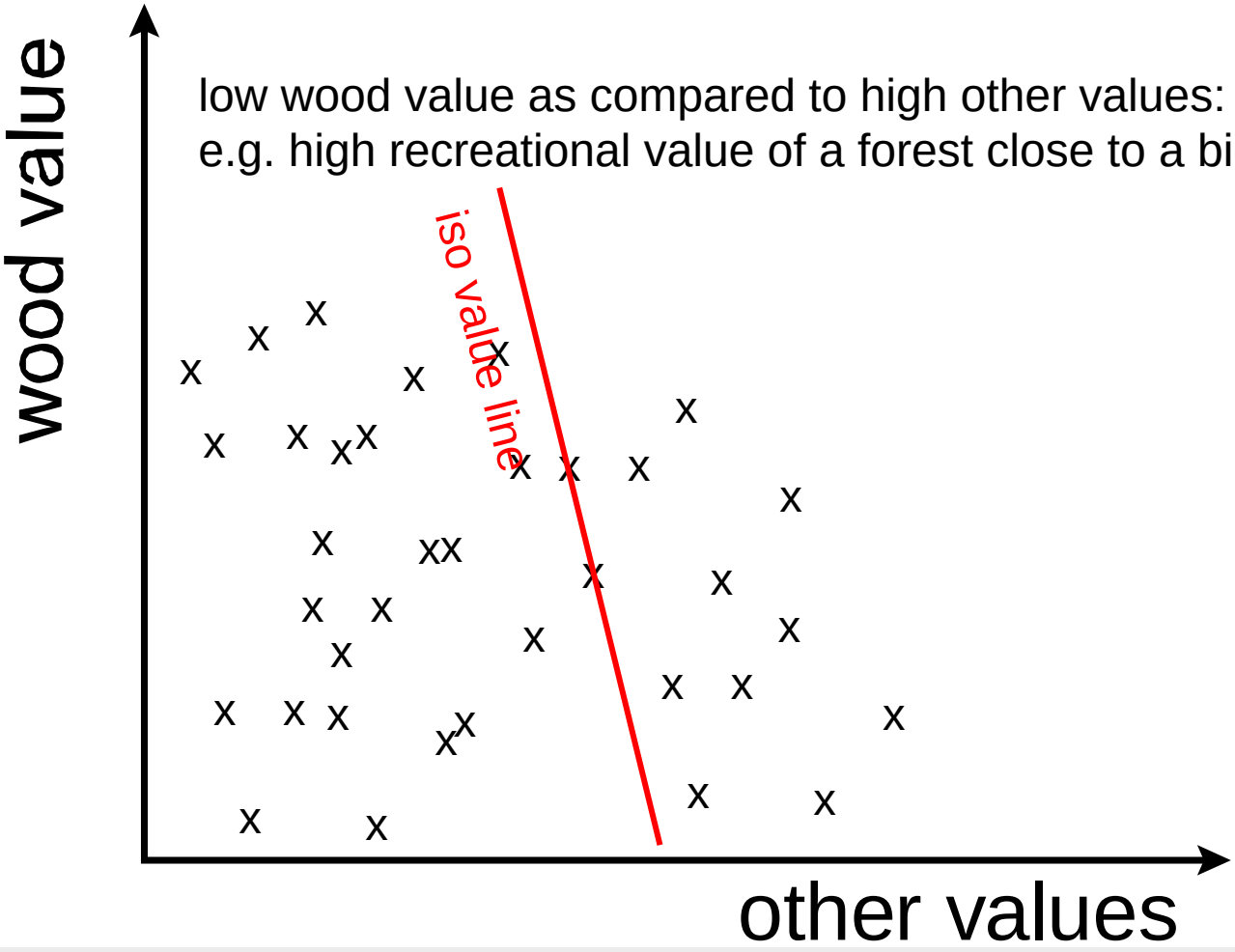


high wood value as compared to low other values:
e.g. highly productive site where other values are less relevant

Selection of the management options



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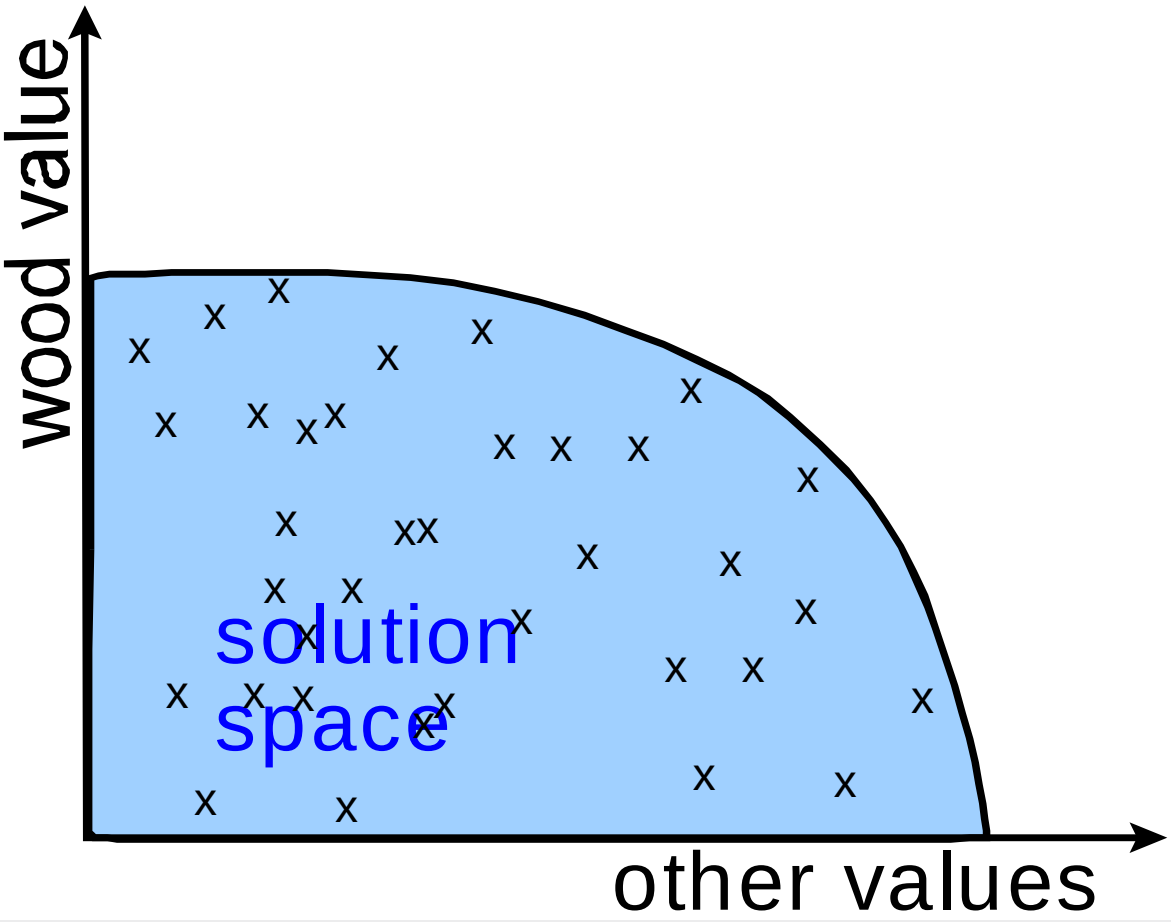

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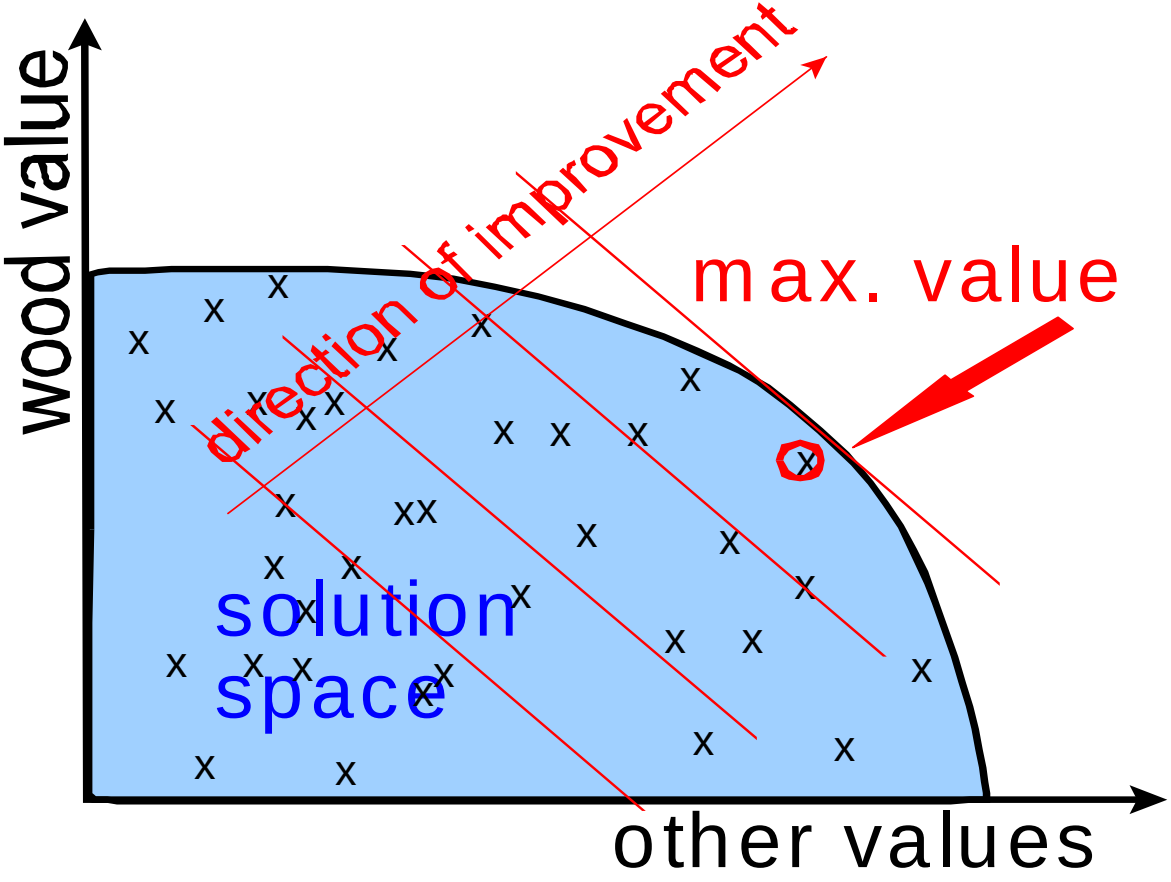
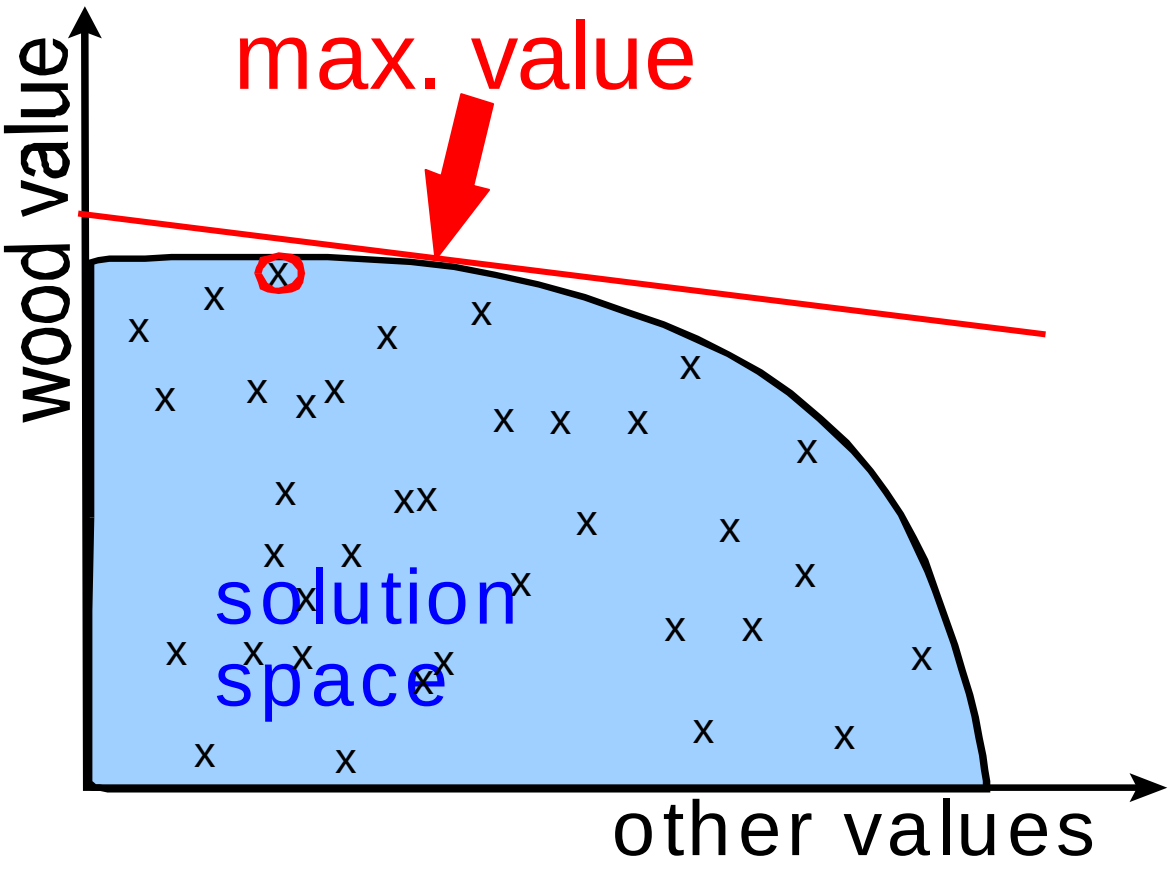


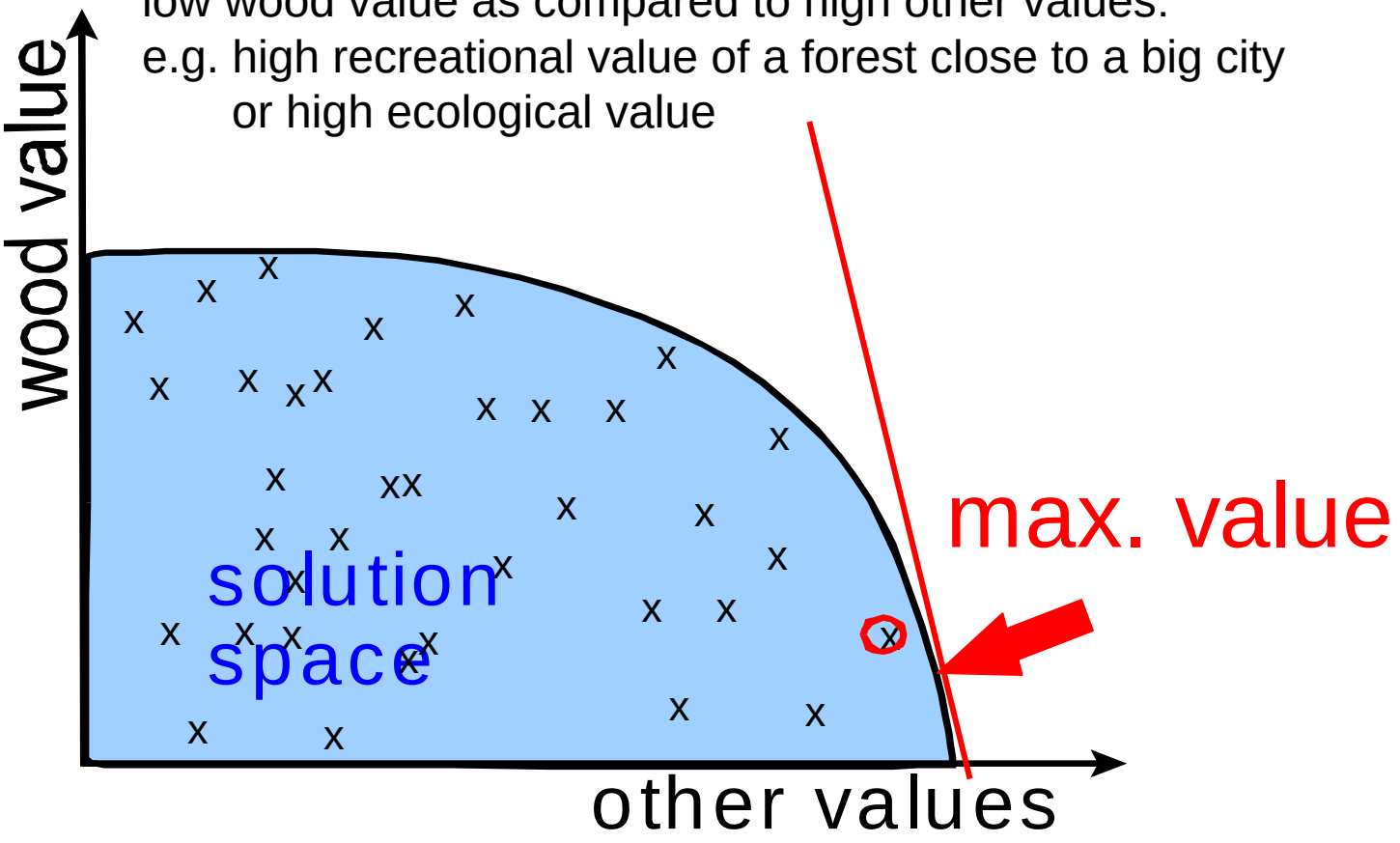
Selection of the management options

high wood value as compared to low other values:
e.g. high productive site and easy to access; little recreational value

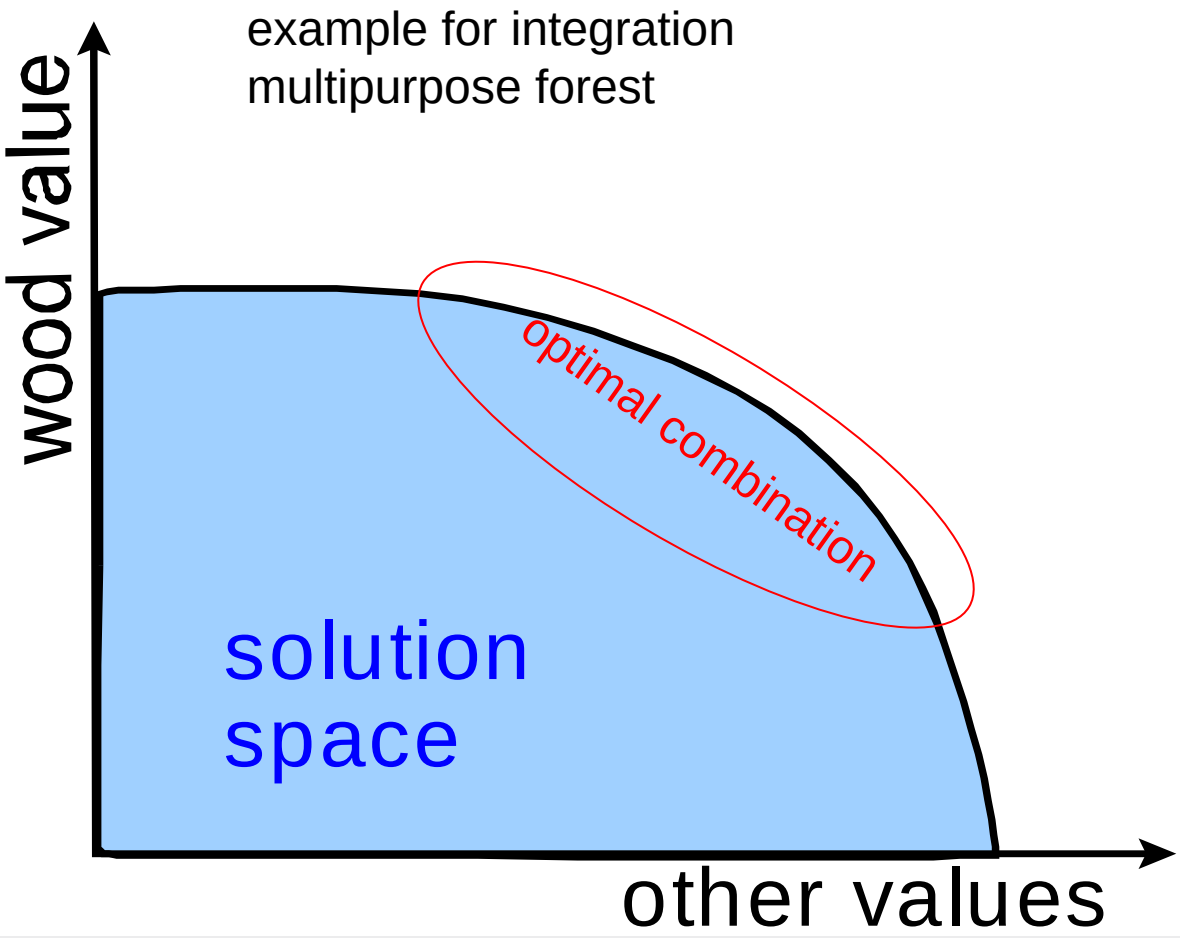


Selection of the management options

low wood value as compared to high other values:
e.g. high recreational value of a forest close to a big city
or high ecological value

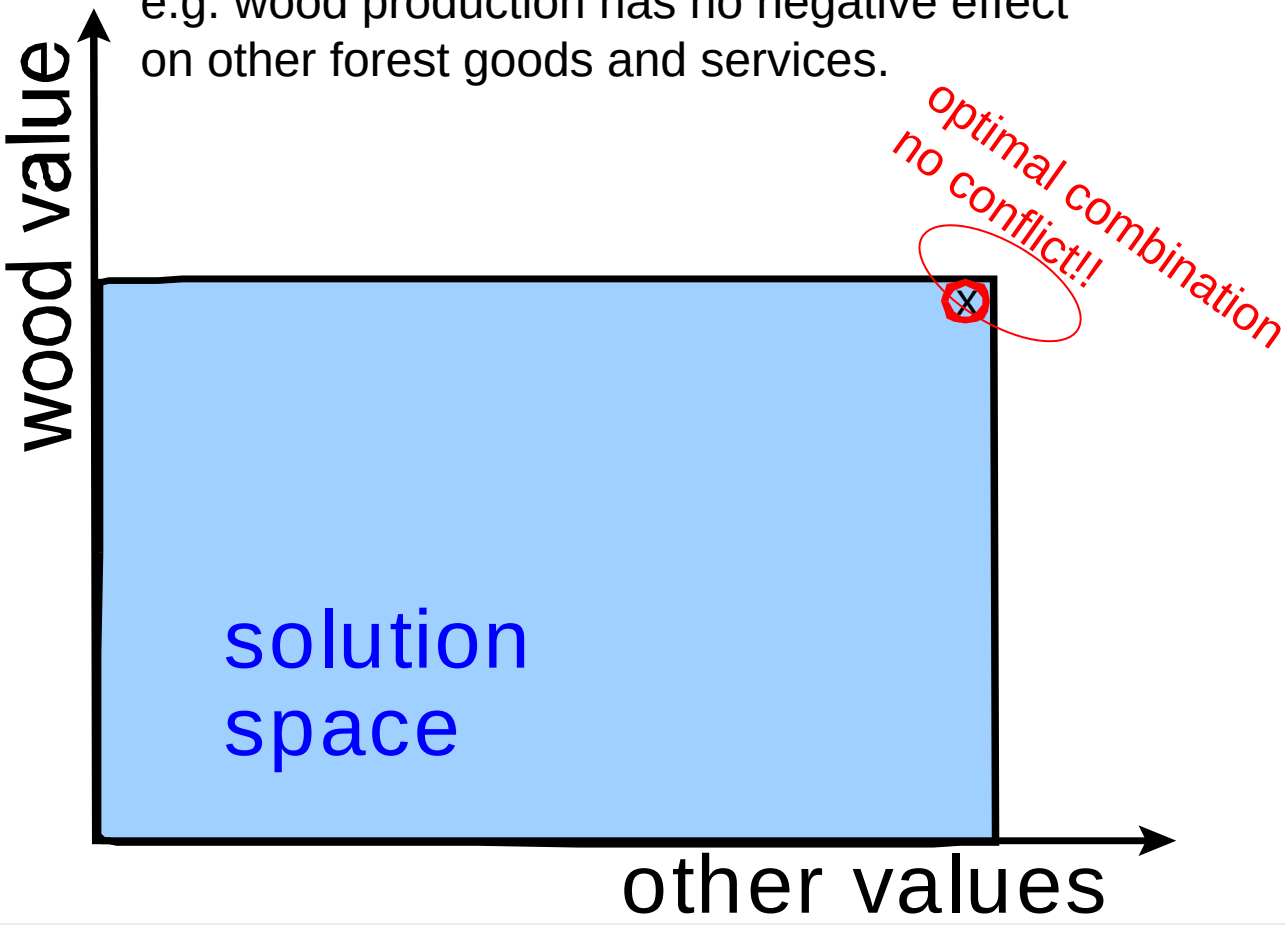


Multipurpose forestry



Multipurpose forestry

example for integration (multipurpose forestry):
optimum 1 is conflicting with optimum 2
e.g. wood production has no negative effect
on other forest goods and services.



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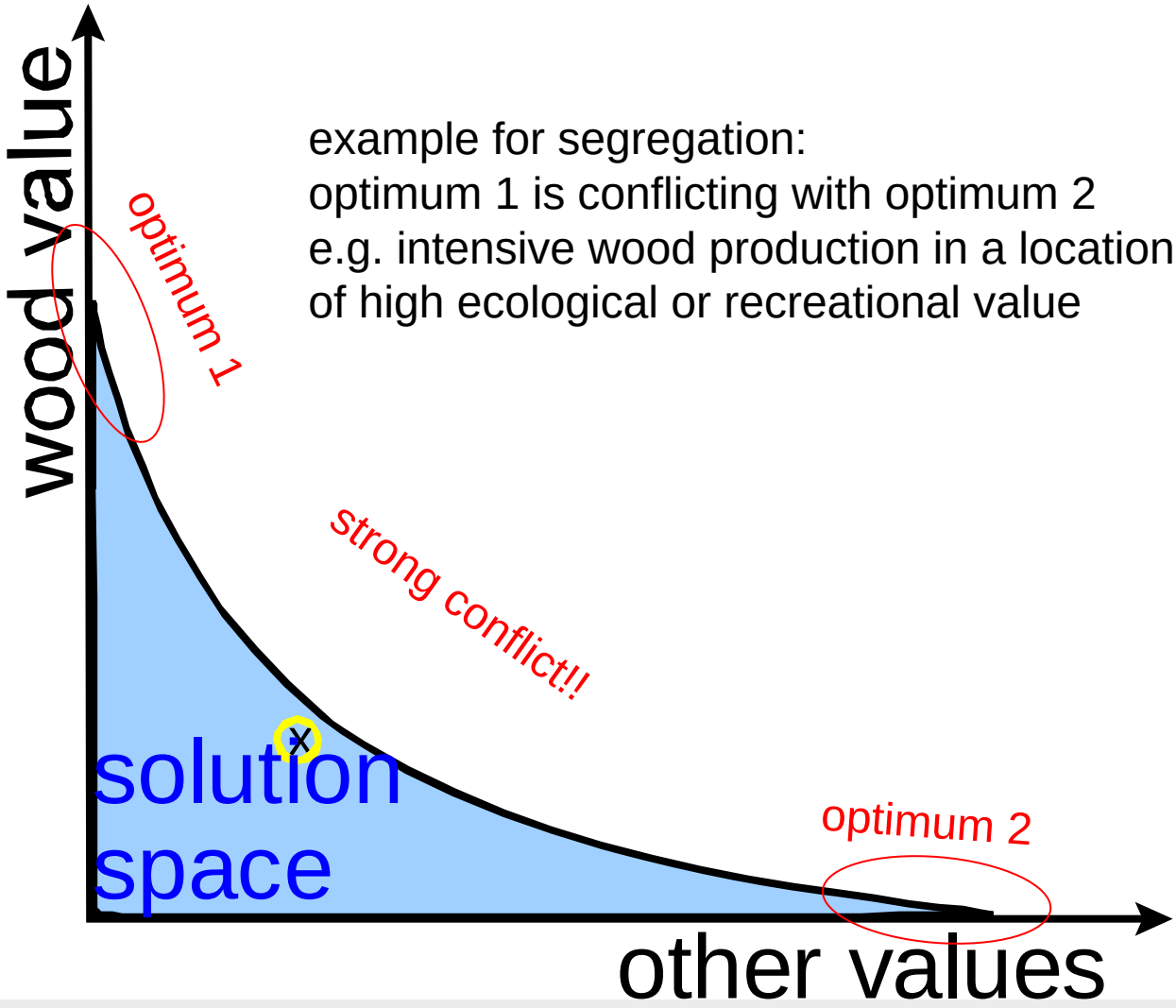
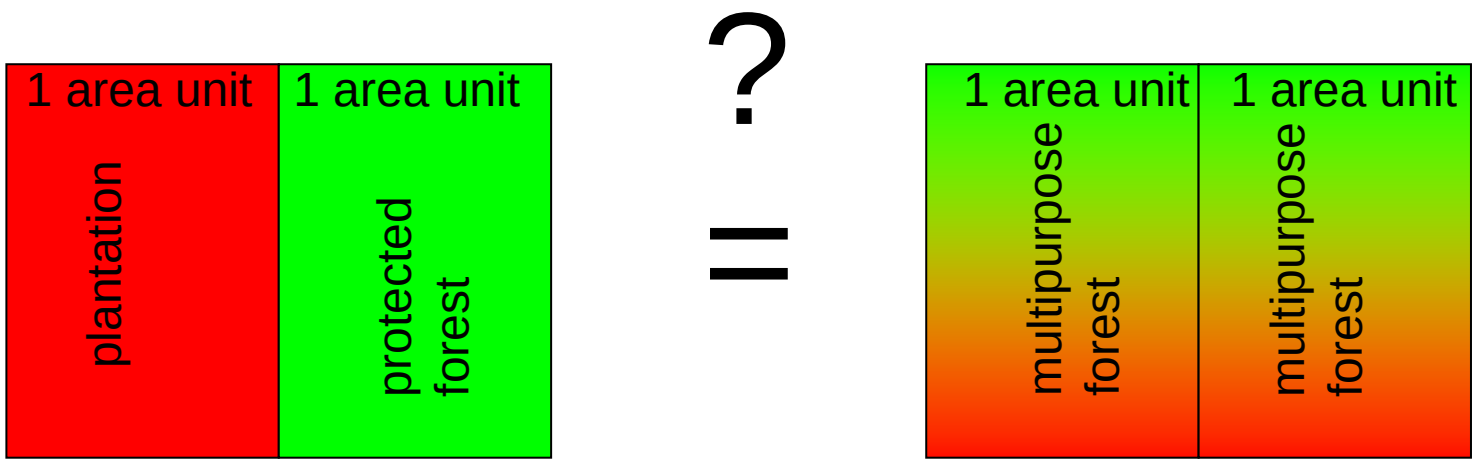


example for segregation:
optimum 1 is conflicting with optimum 2
e.g. intensive wood production in a location of high ecological or recreational value

Multipurpose forestry

value



Multipurpose Forestry an option for the future?

There is no one single optimal management approach for all conditions. Decisions have to be made based on the specific local conditions.

However, these local conditions, the ecological and economic conditions as well as the societal needs will change over time!.

Multipurpose Forestry an option for the future?

Forest ecosystems are complex, long living and therefore can be changed only slowly.

Even so demand for forest goods and services are changing rapidly, forestry should not follow every fashion. It should be sustainable and should be based on information considering future development. As the future is uncertain forests have to be able to adapt to new challenges.

Multipurpose Forestry an option for the future?

Increasing the **adaptive capacity** of forests to new challenges therefore is a key issue in forestry.

What properties should forest have?

- ⇨ They should have the ability to learn;
- ⇨ They should be self regulating

Multipurpose forestry

Does Multipurpose Forestry have an high adaptive capacity?

It can be assumed that a multipurpose forestry that provides diverse goods and services at the same time can more flexible adjusted to ecological changes as well as to new human needs in the future and provides a wider range of options for the future.

Therefore multipurpose forestry is an important option for the future


Thank you for your attention

Multipurpose forestry

Some basic principles of multipurpose forestry:

- species adapted to the site
- tree species mixture (preferred)
- rotation age generally long
- maintaining ecological stability
- using natural processes
- promoting natural biotopes
- carefully use of machinery to protect remaining stand