

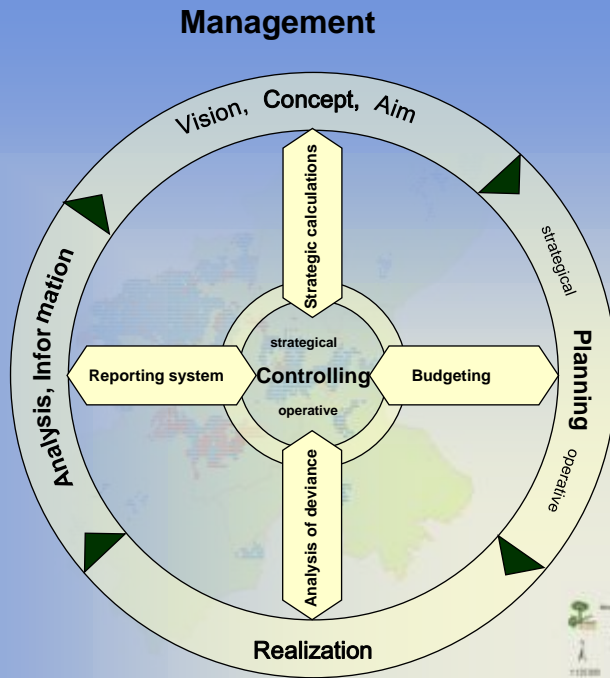
Planning Based on a Type-oriented Continuous Forest Inventory

A.W. Bitter
Dresden University of Technology

Structure

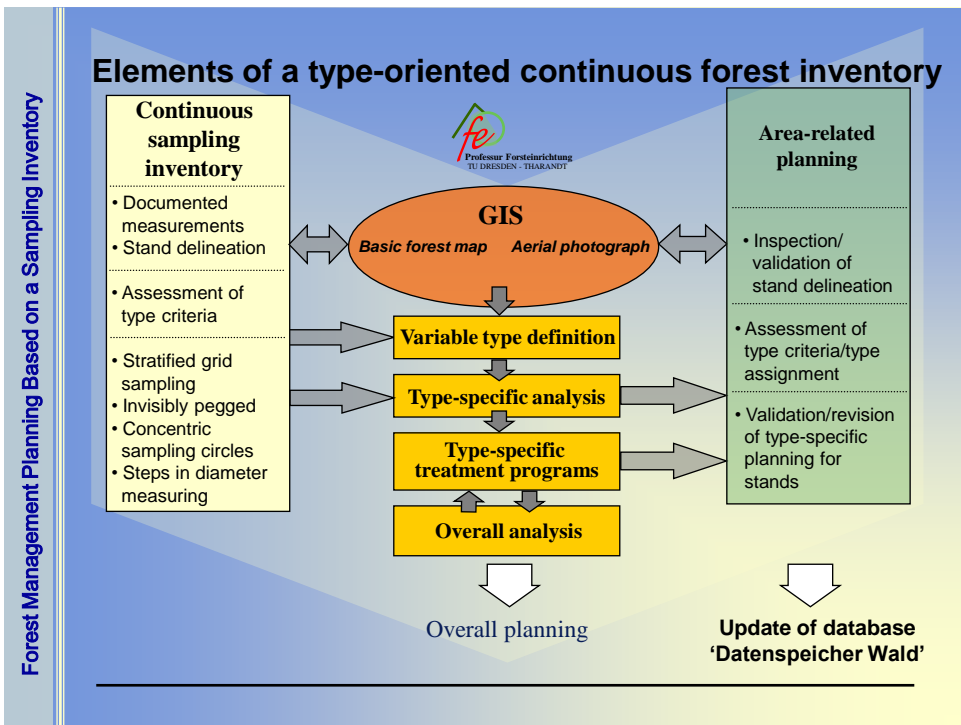
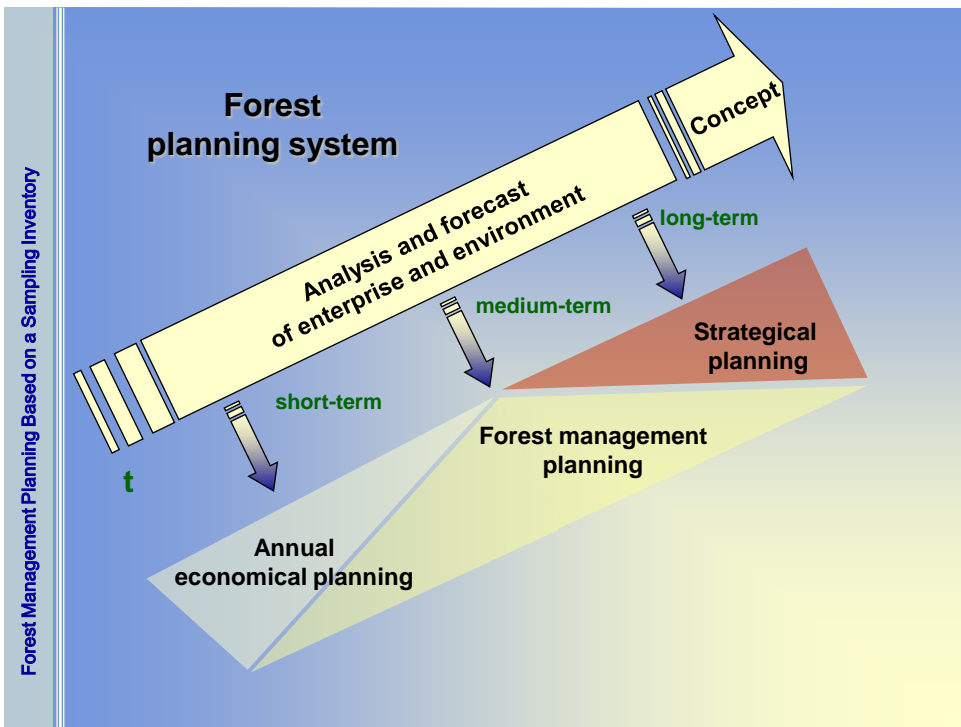
- Forest planning system
- Medium-term planning based on a type-oriented continuous forest inventory
 - Planning of target stand types
 - Type-specific planning
 - Regionalization

- Owner
- Government
- Stakeholders

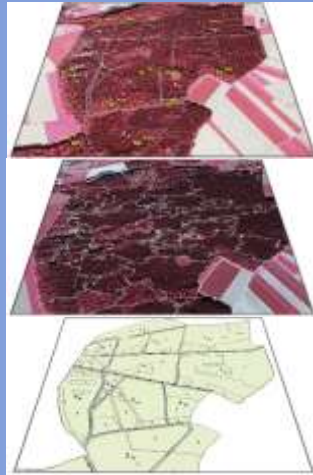


Source: modified from Baus, J., 1999





Area-related planning



Inventory

- Derivation of relevant spatial patterns
= Stand delineation

- Area-related analysis
and type assignment

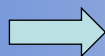
Planning

Type-specific planning based on a sampling inventory

Definition of objective:

*It is the objective of all silvicultural efforts of the State Forest Administration to create stable, structured, and species-rich stands which feature considerable amounts of high quality wood and a large growing stock and are **suited to site conditions**.*

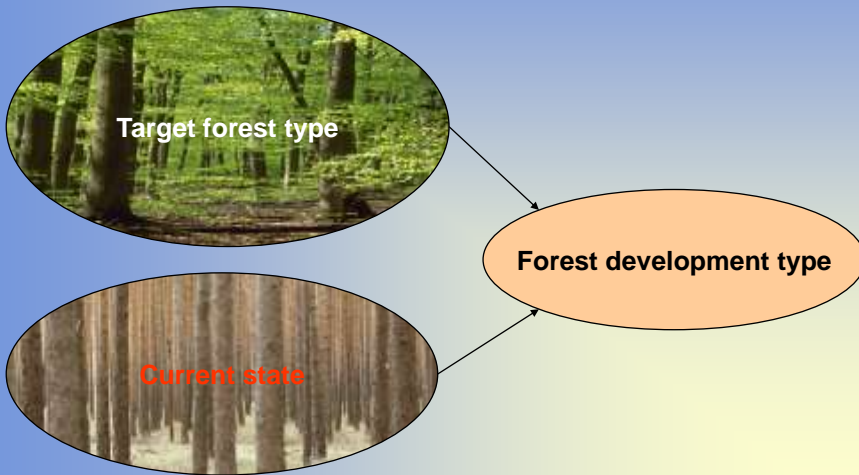
Silvicultural Directive, Land Brandenburg 2004



Forest development suited to site conditions

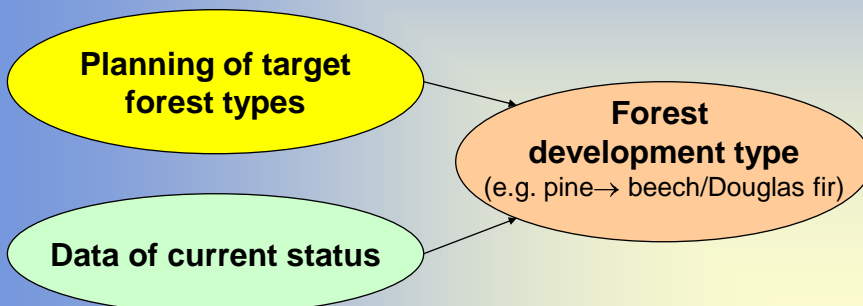
1. Methodically sound, systematic planning of target forest types based on the site conditions
2. Planning of forest development from the current status quo to the site-adapted target forest type

Planning of target forest types as a prerequisite for a target-oriented silviculture



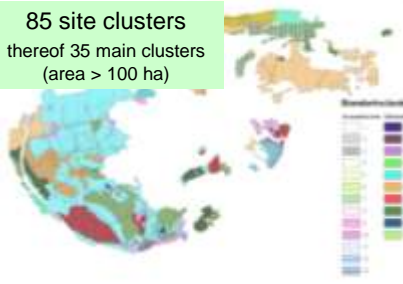
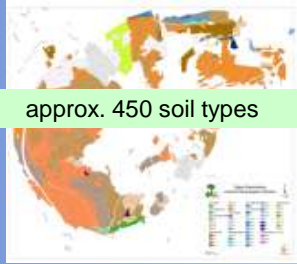
Type definition - Step 1

All surfaces of a forest enterprise featuring a similar current silvicultural state (e.g. pine) and a similar silvicultural development target (e.g. beech/ Douglas fir) are combined into a single forest development type (e.g. development type pine → beech/Douglas fir) .



Aggregation of site entities

Digital map of site conditions



approx. 1.000 different site types

Planning of target forest types

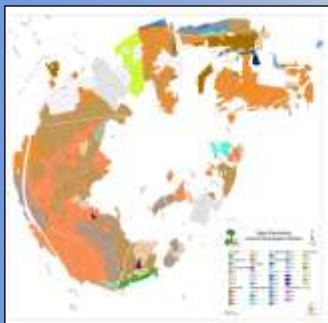
General management

creates



Table of tree species suitability

Digital map of site conditions



Planning of target forest types as an iterative process

Strategic targets
e.g. target dec:conif

Restrictions
(FFH areas, especially sensitive sites, WBK)

Current stocking



Results - Planning of target forest types

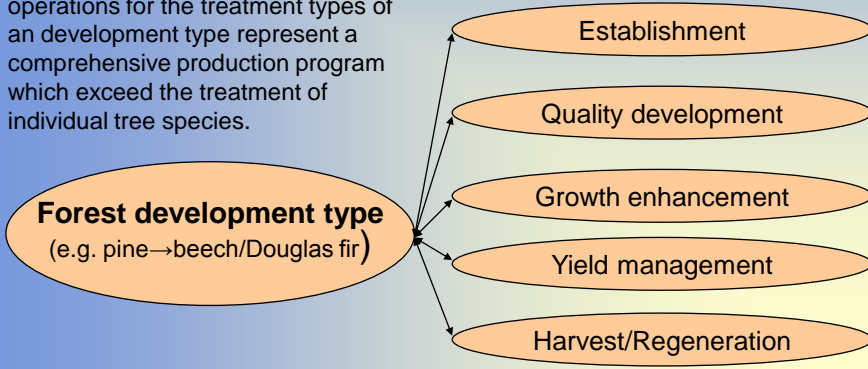
Planning of target forest types as an iterative process

- Tree species distribution
- Maps of target forest types
- Expected yields
- Comparison of alternatives is possible

Type definition - Step 2

According to their development stage (growth class, top height), the area of a forest development type is assigned to a so-called treatment type for the duration of the planning period.

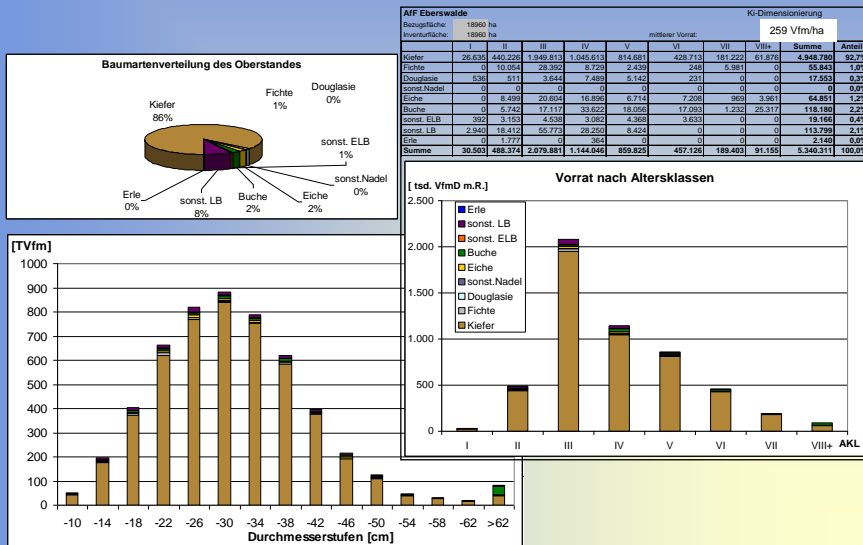
The description of the silvicultural operations for the treatment types of an development type represent a comprehensive production program which exceed the treatment of individual tree species.



Indicator area as customized examples of the derivation of the allowable cut



Selection of indicator areas based on empirical data e.g., growth enhancement of pine



Indices of a treatment type

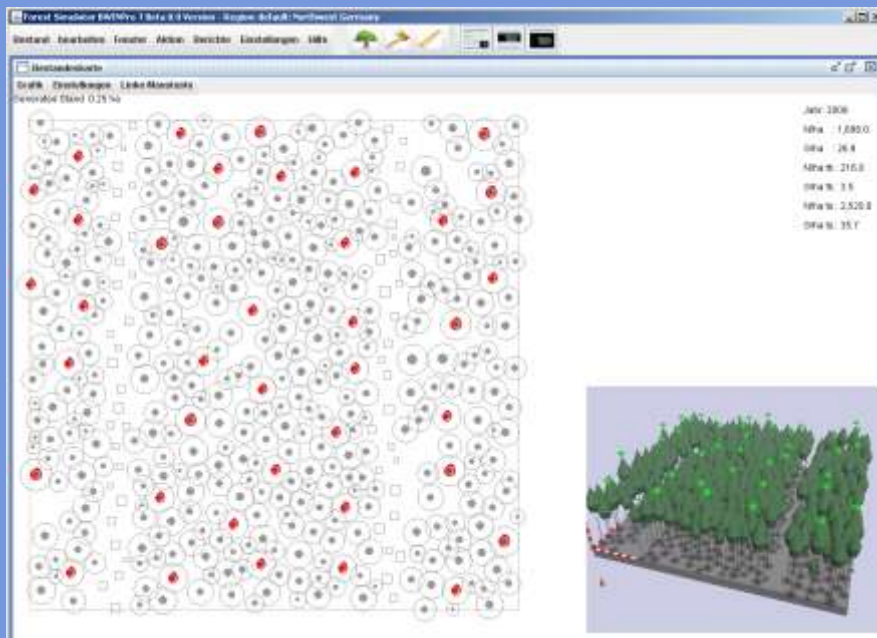
BET Ki Dimensionierung Auswertung Gesamtvorrat/ha Grundraster

Hilfswort: Berechnung mit "Verfahren 2" (ohne fehlende Verfahren-1-Bäume)

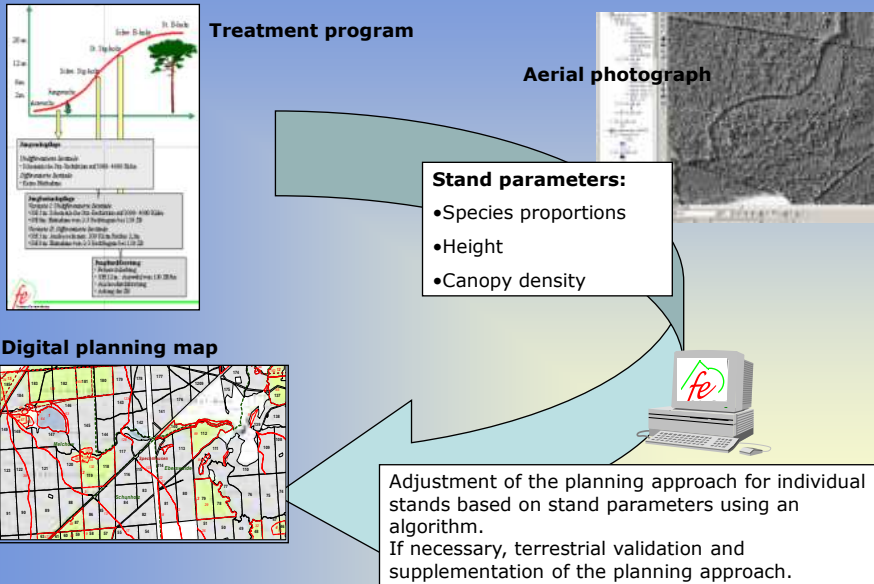
Anzahl Plots	Vorrat (t/ha/ha)	Stämme	Stc	Stc %
735	259,5	107,9	4,0	1,57%

Baumarten-Gruppe	Vorrat/ha	Anzahl Plots	Stammstämme	StM/Faktor	proc. Fehler
Kiefer	242,0	735	107,9	4,0	1,6%
Lärche	1,2	735	13,7	0,5	43,7%
Fichte	1,7	735	12,0	0,4	26,2%
Douglasie/NH	0,8	735	9,0	0,3	39,7%
Eiche	2,9	735	13,4	0,5	17,0%
Buche	3,9	735	22,4	0,8	21,3%
Ahorn, Erle	0,0	735	0,7	0,0	70,9%
Sonst. HBk.	0,3	735	3,5	0,1	37,0%
Birke	5,8	735	16,0	0,6	10,2%
Erle	0,2	735	5,8	0,2	94,2%
Sonst. WBk.	0,6	735	7,5	0,3	44,3%
Gesamt	259,5				

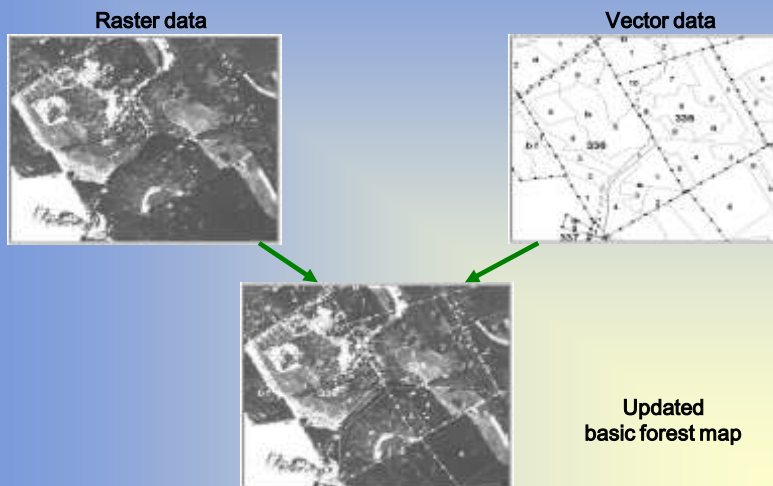
Analysis of an indicator area



Spatial upscaling of the type-specific planning



Updating of the basic forest map



Updating of basic forest map

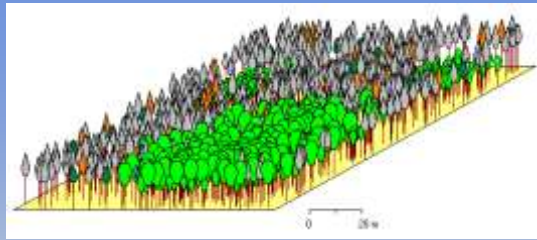


Area-related planning Assignment of stand parameters

- Stand delineation
- Assessment and assignment of types
- Upscaling of allowable cut to stand areas

St-Nr	Fläche	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP	MP
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
4	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Area-related planning

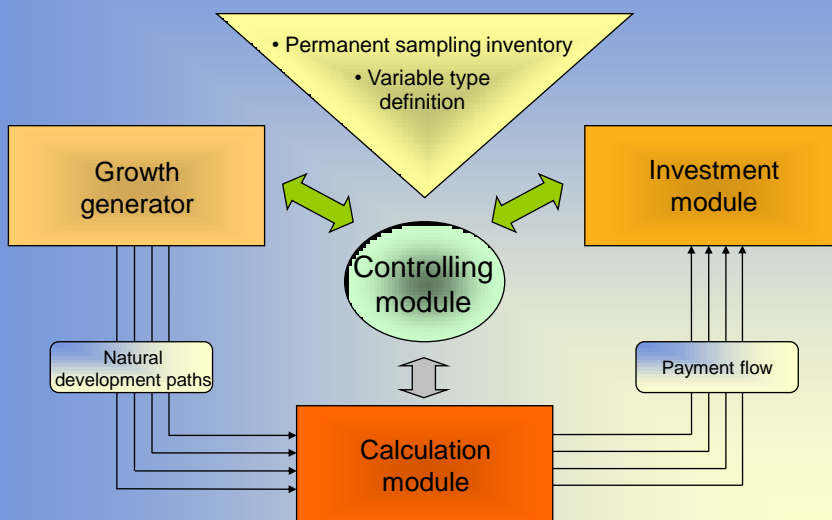


- Benefit-oriented valuation of alternative type developments
- Targeted combination of treatment strategies

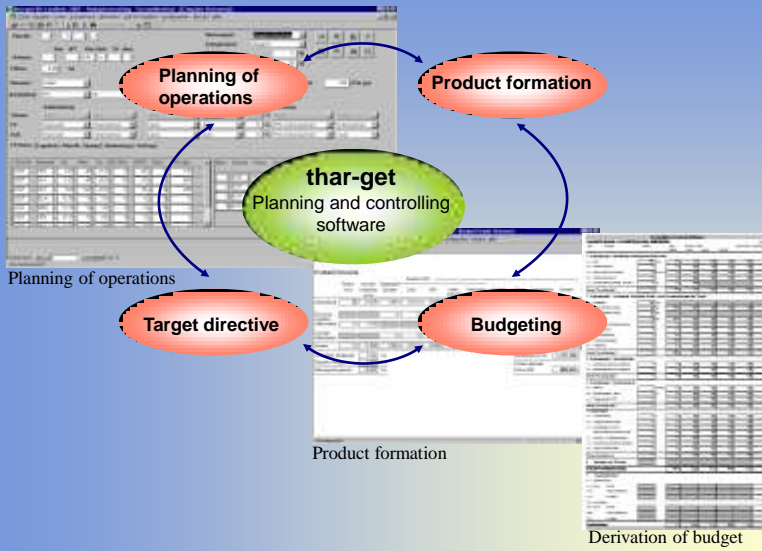
Area of forest enterprise
as a mosaic of types

Strategy development

- Integrated GIS-supported simulation system -



Target-oriented controlling



Results - Planning of target forest types

