

# Some remarks to field labs as part of academic forest education

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# Introduction

- **Hypothesis:** There exists a general understanding that field work is an essential part of academic forest education.
- **Then, questions must be answered:**
  - What are the **objectives** of field work?
  - Which **form** of field work or „field labs“ exist and how can/should they be used?
  - **At which time?** What part of the academic forest education?
  - **Where**, in which type of forest?

# Objectives 1

- Gain **knowledge** (vegetation, trees, soil types, insects, fungi, pests and diseases, silvicultural systems ...)
- Visit/see excellent **examples** of forests and forestry: stands (species composition, structure ...); harvesting systems ...
- Learn and train **observation** („ask the trees“)
- Become aware of the need for **differentiation**
- Acquire (practise) a **systems view**

# Objectives 2

- Learn the use of **instruments** (GPS, Vertex, clinometer, calliper, diameter tape ...)
- Learn, train the use of **methods** (e.g. sample plots as part of forest inventory)
- Practise **activities** (planting, ..., hunting)
- Collect **data**
- Design and perform **research** (projects)
- Meet **people** (practitioners, stakeholders ...)

# Type of field labs

- Courses (weekly or as block course)
- Exercises (individually or in groups)
- Excursions (with interesting discussions)
- Demonstrations (e.g. of forest operations)
- Practical work (to learn basic technical skills)
- Projects
- Collection of data
- Research

# Excursions as special case 1

- Just as demonstrations:
  - Stands,
  - Silvicultural systems, thinning regimes,
  - forest operations ...
- As platform for discussions between:
  - lecturers/practitioners – students,
  - university – practitioners,
  - university – stakeholders,
  - different subject areas

# Excursions as special case 2

- With elements of exercise by students (individually or in groups):
  - defining problems and looking for solutions (e.g. if and how to regenerate a stand),
  - collecting data (e.g. measuring trees) ,
  - being active, e.g. selecting frame (future crop) trees,
  - calculating results of forests operations.



# Projects as special case 1

- **Examples:**
  - Medium-term forest management plan
  - Short-term (yearly) plan
  - Road project (alignment, staking, calculating)
  - Intervention in one stand (from silvicultural programme to marketing of timber including marking of trees, location of skidding lines, monitoring the harvesting operation)
  - Dealing with acute forest damage (storm)

# Projects as special case 2

- **Advantages of projects:**

- Exercise in project management  
(organisation of work; setting milestones, keeping deadlines; collection, exchange and documentation of information ...)
- Working interdisciplinary
- Developing and evaluating options
- Need for and practice of decision-making
- Teamwork

# Topics and type of field lab

- Practically, every forest science needs some sort of field work.
- What type of field lab – in what type of forest – depends on the information/method at stake
- Thus, there is no general solution.
- Rather, information/method, type of forest and type of field lab have to match.
- Time and extent of field labs depend on the syllabi of the subject areas.

# Example of forest engineering

- Exercises in work studies
- Demonstrations of equipment, machinery, forest operations, harvesting systems
- Block course for forest operations
- Excursions to forest enterprises with outstanding examples of forest operations
- Excursions to road construction and road maintenance
- Block course for a road project

# Type of forests

- University forest
- Other forest owner (state or community, seldom private):
  - One forest enterprise or a set of enterprises as „experimental forest“
  - Free selection of location in an entire state forest
- Each solution comes with specific advantages and disadvantages.
- In any case: transport (and/or accomodation)?

# University forest

- Sense of ownership and responsibility
- The problems of forest management are encountered and must be solved (objectives, personnel, silvicultural strategies, harvesting and marketing of timber, economic viability ...).
- Profit goes to the university
- *Limited range of stands and problems*
- *Up-to date procedures in any case?*
- *Loss must be covered by the university*

# Other (public) forest owner

- Insight into a public forest administration with modern concepts (e.g. accounting system)
- Whole range of problems and solutions can be studied.
- Great selection of terrain and stand conditions
- *Problems of getting information*
- *Good cooperation with the personnel of the owner is not guaranteed.*

# Example of the University of Göttingen

- No university forest (*except a forest botanical garden and tree species of the world distributed over the campus*)
- Instead, several forest districts of the state forest of Lower Saxony and Hesse as „experimental forest“
- Lower Saxony later recalled this solution and offered the entire state forest for education and research according to needs of the university.



# Activities in a state forest district 1

- Courses (in various forms)
- Excursions (for students and visitors of the faculty)
- Practical demonstrations
- Demonstration plots
- Supply of information and material
- Areas and objects for projects
- Areas and material for research

# Activities in a state forest district 2

- Research in the form of BSc, MSc, PhD theses (covering many subject areas)
- Research plots for the faculty - partly later taken over by the forest research station
- Hunting reserve
- Contacts to corporations (*sort of community forests*) could be established
- **In general: practically all forms of field labs!**

# General strategy

- Guiding principles:
  - Maximal flexibility
  - Minimal bureaucracy
  - Wishes of the faculty accepted
- Limits:
  - too great a disturbance for the management of the district
  - economics

# Lessons learned 1

- The district should be informed what is going to happen (at any rate, if the forest is not only visited but, for instance, soil pits are opened).
- The participation of the district (foresters, workers) should be limited to cases where it is (absolutely) necessary.
- Strict rules for traffic must be formulated (no individual traffic without permit, limited speed, taking care of visitors to the forest, parking without blocking other traffic ...)

# Lessons learned 2

- Problems can be forwarded to the university.
- The university might provide solutions → transfer of knowledge from the university
- New ideas through lecturers and students
- Critical evaluation of ideas and activities
- Chance for the enterprise (district) to be always up to date
- **Openness from both sides is required**
- **Then, it can become a win-win situation!**

# Conclusions

- Necessity of field work (field labs)
- Many objectives for them
- Several forms of field labs
- No general solution, domain of subject areas!
- This refers to type, time, extent or location of field labs.
- Different types of forest ownership
- All solutions work if there is a willingness for cooperation.

Thank you for your attention!