

# Forestry from above – Vision or reality?

**Andreas Gising**

**GI LIFT** 



## **Business Idéa**

GI-Lift offer systems and services for ground independent fossil-free forest management

## **Vision**

Contribute to reduced climate change by being a leading innovative actor in fossil-free, ground-independent lifting systems

# We want to

- Lift forestry
- Enable precision lumbering
- Increase yields by fertilizing, not using stick roads, growing forests resistant to disturbances
- All electric, no CO<sub>2</sub> emissions

Clearcutting forestry strategy is problematic and dominant





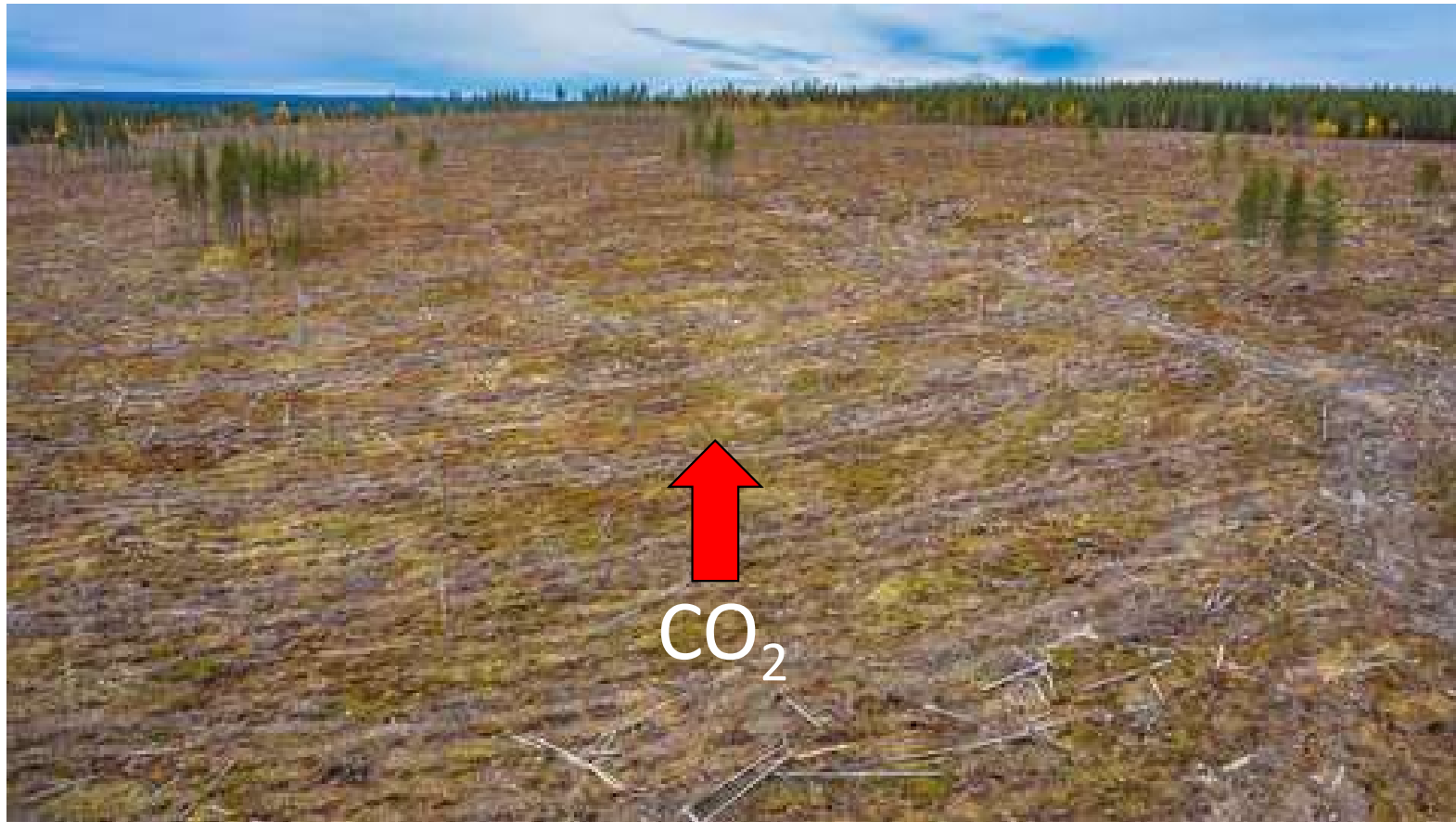
# Thinning



Stick roads take up ~15-20% of the area.  
Heavy machines damages stems and root systems.



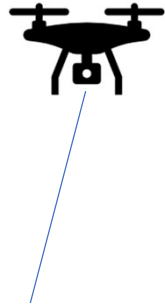
-> Avoid clear cutting!



# Continuous cover forestry

- 'Close to nature forestry'
- Continuously take out trees as they mature
- No thinning – no stick roads
- Forest regenerates it self and naturally becomes a poly culture
- Rich biodiversity
- High resilience to disturbances such as storms, insect attacks, diseases, and more
- It is the mother earth recipe, ...except for taking out the biomass

# How to harvest then?



- Ground Independent LIFT systems
- Initially worked on lifting out trees
- Right now, focusing on fertilizing with ashes from power plants





2024-03-25



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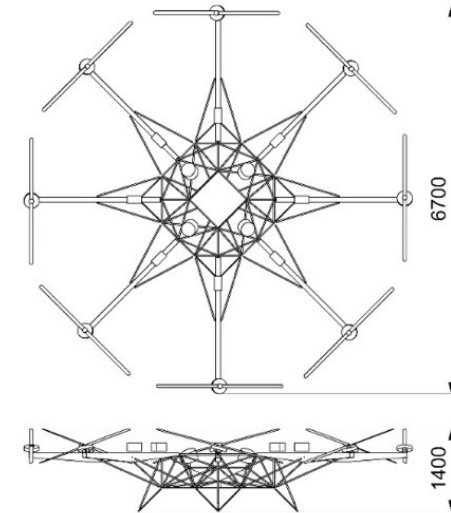
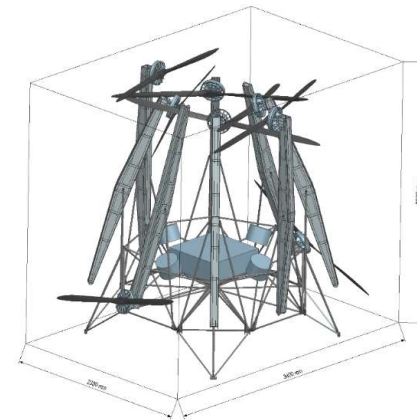
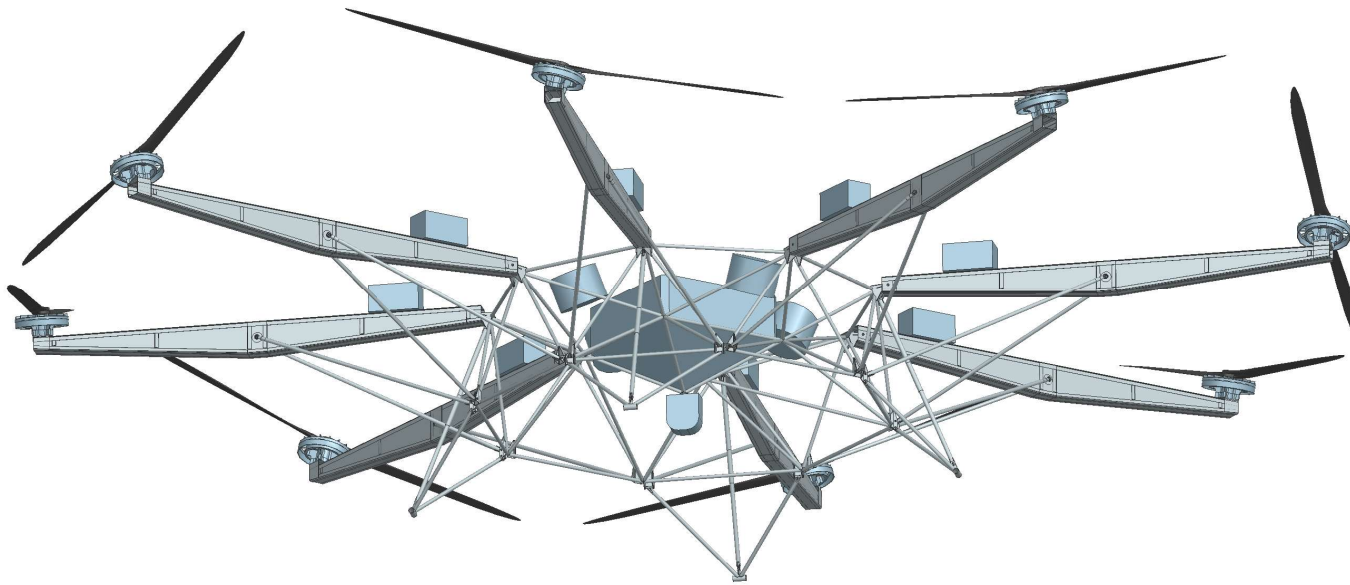
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Current prototype Proto8: 2.75x2.75m



# GIL-1



# Load testing of arms ongoing



3/25/2024

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# First flight will be exciting..

- Simulating reduces stress levels
- Collaborating with Santa Anna to replace the drone model part of drone+autopilot simulator Arducopter SITL
- Starting from drone library of Luigi Vanfretti
- OpenModelica drone model compiled to an FMU
- OMSimulator to run FMU and connect to Ardupilot SITL and replace its model

ARDUPILOT



With financing from:

**VINNOVA**  
Sweden's Innovation Agency

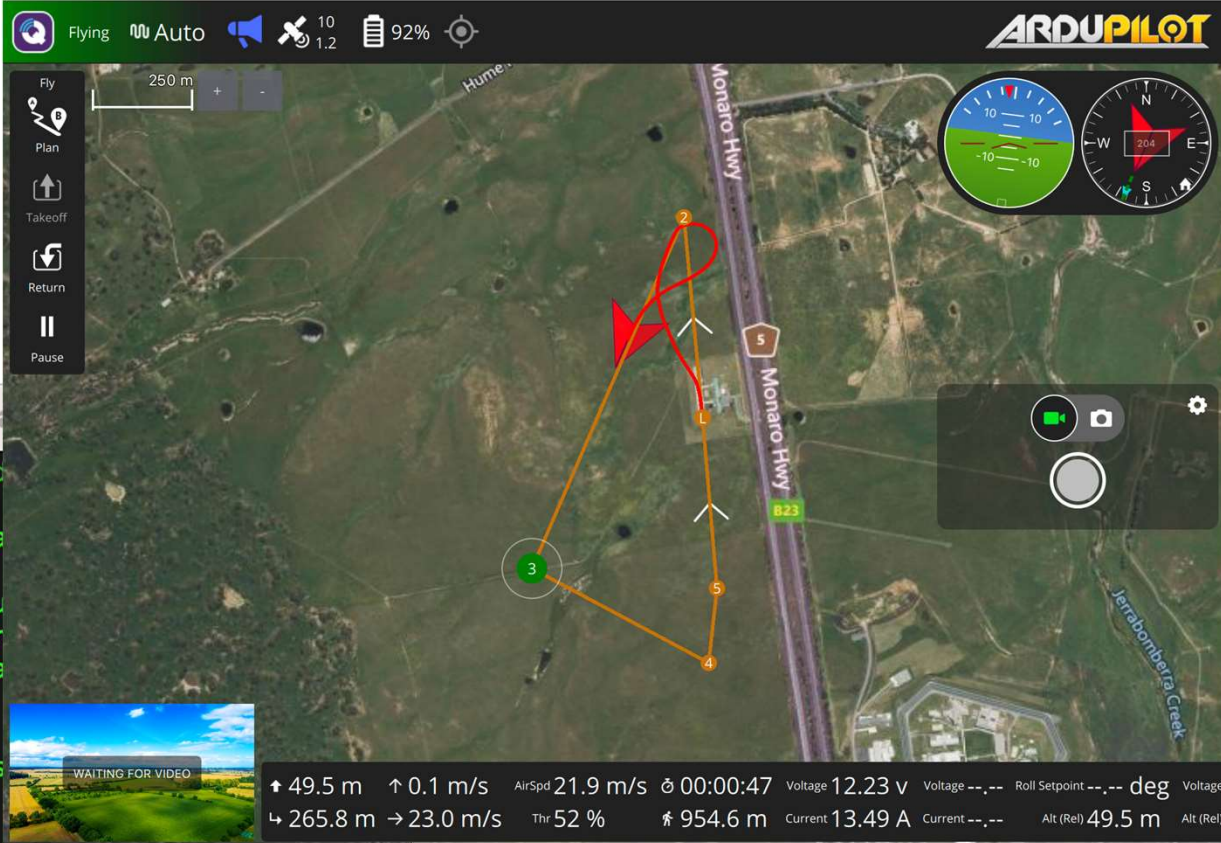


OM Simulator  
Drone FMU



Autopilot simulator

```
ardupilot — Python < sim_vehicle.py --console --m
Build commands will be stored in build/sitl/compile_command
'build' finished successfully (3.501s)
SIM_VEHICLE: Using defaults from (Tools/autotest/models/pla
SIM_VEHICLE: Run ArduPlane
SIM_VEHICLE: "/Users/gising/Git/ardupilot/Tools/autotest/ru
"ArduPlane" "/Users/gising/Git/ardupilot/build/sitl/bin/ar
"plane" "--speedup" "1" "--slave" "0" "--defaults" "Tools/a
m" "--sim-address=127.0.0.1" "-I0"
SIM_VEHICLE: Run MavProxy
SIM_VEHICLE: "mavproxy.py" "--out" "127.0.0.1:14550" "--mas
" "--sitl" "127.0.0.1:5501" "--map" "--console"
Connect tcp:127.0.0.1:5760 source_system=255
Loaded module console
Loaded module map
Log Directory:
Telemetry log: mav.tlog
Waiting for heartbeat from tcp:127.0.0.1:5760
MAV> Detected vehicle 1:1 on link 0
INITIALISING> MANUAL> Received 1396 parameters (ftp)
Saved 1396 parameters to mav.parm
FTP reply for mavlink component 190
MAV> □
```



Standard GUI, GCS

# Answers we look for

- Evaluate different parameters of the design
- Guide us to first flight PID parameters
- Help us evaluate the concept
- Ease the development of hanging load controller
- Etc.