



ASPEN: Autonomous Systems for Forest Protection

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TAS Showcase

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A Call to Arms

Importance of forests

- ❖ Key asset that consumes one third of greenhouse gas emissions
- ❖ Provides habitat for 80% of land-based animals and plants
- ❖ Reduce natural disasters such as floods and landslides
- ❖ Livelihoods for 1.6 billion people



Forests under threat

- ❖ Report in 2021 estimated only 7% of forests are in good condition
- ❖ November 2023 a study predicted that forests are heading towards a “catastrophic ecosystem collapse” within the next 50 years
- ❖ Pests and diseases (P&D) are constantly endangering our forests; must be vigilant of invasive species
- ❖ Early effective detection of P&D is vital



Protecting our Forests

Boots on the ground

- ❖ Forest management teams
- ❖ Forest Health specialists; but roughly only 200...
- ❖ Citizen science
- ❖ Terrain to cover is massive; 13-14% of UK are forests
- ❖ Different stages of diseases present as well

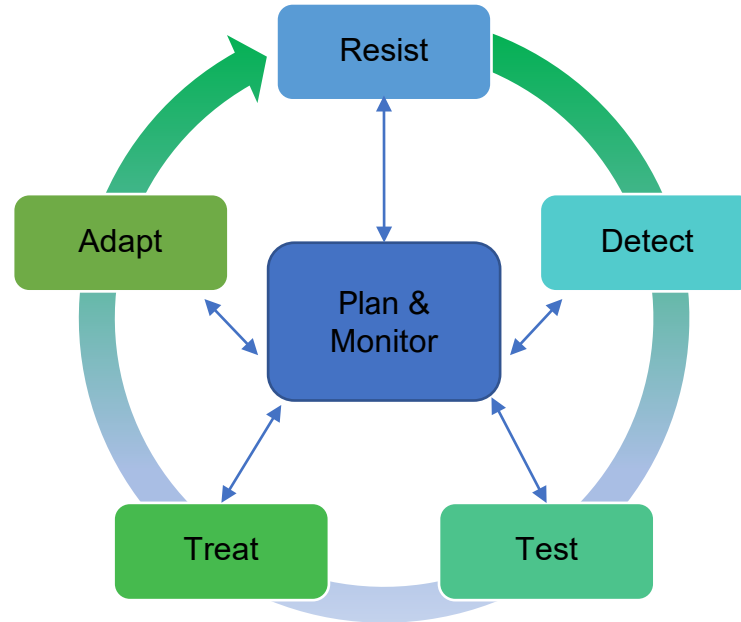




Forest Protection Cycle

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A holistic approach





Bringing in Autonomy

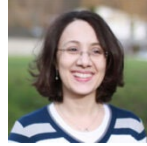
Requires a multidisciplinary team



Dr Norman Dandy:
Environmental Social
Scientist



Prof. Radu Calinescu:
Computer Science



Dr Amel Bennaceur: Software
Engineering Researcher



Dr Colin Paterson:
Computer Science



Dr Bev Townsend:
Researcher in Law



Prof. Doreen Boyd:
Earth Observation



Dr Seumas Bates:
Environmental Social
Science



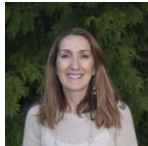
Dr Andy Smith: Reader
in Forestry



Dr Victoria Hodge:
Senior Research
Software Engineer



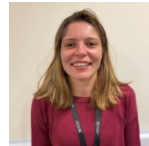
Rob Taylor:
Arboriculturist



Mariella Marzano:
Scientists, Forest
Research



Juan Suarez-Minguez:
Head of remote
sensing, Forest
Research



Dr Chloe Barnes: Head
of remote sensing,
2ExcelGeo



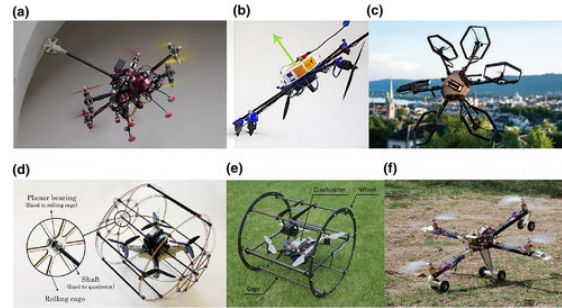
Gary Llewellyn:
Remote sensing
consultant, 2ExcelGeo



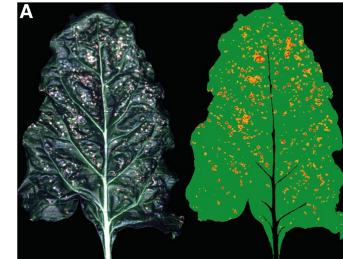
A global collective



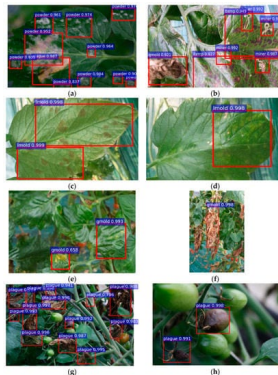
S. Hamaza et al.



B. Li et al.



A. Mahlein et al.

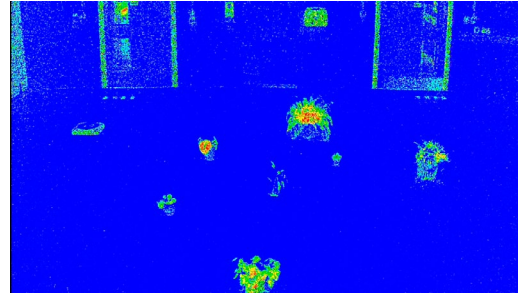
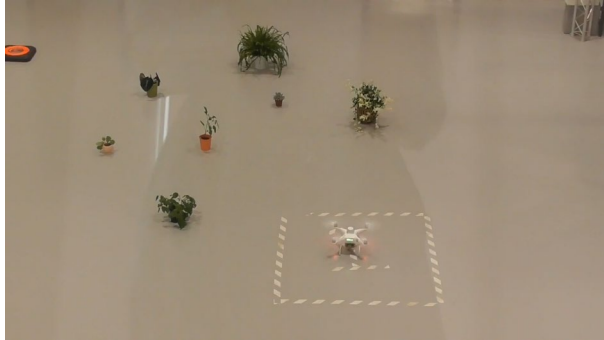


A. Fuentes et al.



DeLeaves canopy tool

Bridging the gaps





Thank You



Get in Touch

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🌐 <https://www.linkedin.com/groups/8966227>



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