

Silvicultural techniques for timber and biomass

Dr. Gary Kerr

Science Group Leader: Forest Management

Forest Research

Alice Holt Lodge, Farnham, UK

How can we adapt forests
to increase resilience to
climate change and biotic
threats, whilst maintaining
productivity?





PLEASE STAND UP

SIT DOWN IF YOU

DISAGREE

**I am open to ideas about
how we manage even-
aged pure stands**

The silviculture of mixed-species stands in UK forestry is poorly developed

At least 25% of our upland site types are capable of being managed under alternative silvicultural systems to patch clear cutting

**I am confident that I
know the main difference
between a shelterwood
and a selection system**

| | | Species | |
|-----------|-------------|---------|-------|
| | | Pure | Mixed |
| Structure | Even-aged | | |
| | Uneven-aged | | |



A P1935 stand of Norway spruce thinned at 75% and 125% of management table intensity

- **Strengths: Known quantity**
- **Weaknesses: 10 species – 80% area**
- **Opportunities: Tree improvement**
- **Guidance: Good**



Gisburn long-term mixtures experiment showing Scots pine: Norway spruce mixture (P91)

- **Strengths: Spread the risk**
- **Weaknesses: Design...timber markets**
- **Opportunities: Productivity**
- **Guidance: Poor**



A P1951 stand of Sitka spruce managed using an irregular shelterwood at Clocaenog

- **Strengths:** Avoid costs of restock
- **Weaknesses:** Depend on NR
- **Opportunities:** Application to SS
- **Guidance:** Preliminary



Forêt de Boudrey on France/Swiss border - 100 years ago a *P.nigra* plantation

- **Strengths: Permanent forest cover**
- **Weaknesses: Require change**
- **Opportunities: Management objectives**
- **Guidance: Poor**

- The evidence base for the diversification of forests in the UK is not strong
- Significant work is required on species, mixed species stands and alternatives to clearfelling
- This requires a dynamic relationship between research and practitioners
- Funding this work requires long-term commitment from a wide range of stakeholders



Silvicultural alternatives to even-aged Sitka spruce on difficult sites



Sitka spruce at Kielder forest managed using patch clearfelling



**Any
questions?**