

# Topic 2.3: Biodiversity Impacts of Willow Short Rotation Coppice (SRC)

Rebecca Rowe [rlr1@soton.ac.uk](mailto:rlr1@soton.ac.uk)

Gail Taylor, Dave Goulson and Mick Hanley



UNIVERSITY OF  
Southampton



# Overview



- Biodiversity, Willow SRC and Stakeholder interest.
- Current status
- Main conclusion and key findings



# Bioenergy, Biodiversity and Stakeholders

- Government
  - Biodiversity targets (BAP)
  - Future policy
- Land owners
  - Bio control within crop
  - Role of willow SRC in meeting environmental standards
  - Possible wider farm scale benefits
- Energy providers
  - Green credentials of their business
- Public and NGOs
  - Evident for the cost and benefits of bioenergy

# Current status

- Publications

- **Completed and published:** Identifying potential environmental impacts of large-scale deployment of dedicated bioenergy crops in the UK, R. Rowe, N. Street, G. Taylor (2009) *Renewable and Sustainable Energy Reviews* 13, 271-290
- **Ready for submission:** Plant and winged invertebrate abundance and diversity in Willow SRC plantations, to arable and set-aside land. R. Rowe, M Hanley, D. Goulson, G. Taylor
- **In Draft:** Quantifying ecosystem processes of herbivory, decomposition in willow SRC versus alternative land-uses. R. Rowe, M Hanley. D. Goulson, G. Taylor

- Current work

- Predation in willow SRC in comparison to arable land, field work completed, identification and analysis underway.



# Key findings

- Ground Flora (Weeds)
  - Willow SRC has a markedly different plant community to either arable or set-a-side land,
  - Willow SRC has higher species richness and abundance than cultivated arable land.
- Flying insects
  - Summer active flying insects groups (Orders) varied between land-uses with potentially positive bio-control outcomes.
- Investigation on the effect of land use change on ecosystem processes of herbivory, decomposition and particularly predation are ongoing.

# Main Conclusion

In agricultural dominated landscapes willow SRC increases landscape biodiversity.

Willow SRC provides a more stable less intensive environment in which species of plants, invertebrate and small mammals which are uncommon in cultivated arable land can persist.

The effect of willow SRC on ecosystem process are significant and complex.....



# Acknowledgments

- Land Owners,
  - Russell Fraser, Dave Barrett and Fred Walter (CRL)
- Field Assistance
  - Suzie Milner, Alex Wan, Sarah-Jane Yorke, Matt Aylott, Lisa Durrant, Stefan George, Katie Finn, Stacey, Judy Gallimore, Carl Wardill, Jo Seymour, Matt Guy, Dr Donna Clarke
- Supervisors:
  - Prof. Gail Taylor, Dr. Mick Hanley, Dr. Dave Goulson
- NERC and TSEC

