Sustainable Management of Reedbeds for Conservation

Sally Mills
RSPB Reserves Bioenergy Project Manager

a million voices for nature
The UK Conservation Challenge

- Current UK areas managed for nature conservation:
  - Reedbed – c. 7,700ha
  - Upland acid grassland – c. 1,200,000ha
  - Coastal & floodplain grassland – c. 230,900ha
  - Wet woodland – c. 60,000ha
  - Lowland Fen – c. 25,800ha
  - Lowland raised bog – c. 6,000ha
  - Coastal vegetated shingle – c. 5,800ha
Optimise reedbed management
Management Methods
Mechanisation
Biomass production
Disposal of Biomass – the consequences

- Habitat not managed
- Habitat degradation
- Sacrificial areas, material left to rot
- Material burnt on site
Composting
**Sustainability**

- Soil conditioner – High volume, low value product
- Product production off-set costs and possibly lead to future income generation
- Reduce carbon use
  - RSPB aspire to cut their emissions by 30% by 2020 compared with 2010
- Biomass into an energy product
Energy Product

Wood Brash – 100%
Double pass shredded
Plain and waxed

Soft Rush & Tufted Hairgrass – 40%
Wood Brash – 60%
Double pass shredded
Plain and waxed

Soft Rush & Tufted Hairgrass – 75%
Wood Brash – 25%
Double pass shredded
Plain and waxed
Next steps...

From **birds to briquettes** – using waste on the **Exe Estuary reserve**

The RSPB is keen to make good use of the large quantities of waste vegetation arising from habitat management on our reserves. At our Exe Estuary reserve, we have trialled a creative method, converting bales of tallowed bulrush and soft rush into clean fuel for local people. Given the need to reduce fossil fuel consumption, developing such methods is an important part of preparing for the future.

SALLY MILLS, SITE MANAGER, EXE ESTUARY
Wetland Biomass to Bioenergy Scheme

How it started...

Background

- DECC’s recent Bioenergy Strategy focuses interest on sustainable supply of bioenergy feedstocks.
- RSPB interested in optimising wetland management and resolve issues around ‘waste’ biomass
Aims

- Increase sustainable supply of bioenergy feedstocks
- Increase renewable energy contribution to energy mix
- Optimise wetland management
- Utilise ‘waste’ biomass
- Achieve the above whilst having a positive impact on biodiversity and no impact on food production
Current Status

- DECC’s Science and Innovation team have approved £2m over 2 years for the scheme.
- A competition to design, develop and demonstrate an efficient end to end bio-energy system that utilises biomass arisings from wetland management activities.
- Optimisation of wetland harvesting activities lead by conservation requirements and objectives.
- At least one innovative step in the specified process.
Delivery

• 2 year project in 3 phases
• The scheme will be run in the most challenging wetland landscapes in the UK
Somerset Levels and Moors
Broads/Fens/Suffolk Coast
Delivery

• 2 year project in 3 phases

• The scheme will be run in the most challenging wetland landscapes in the UK

• Each location offers diversity of issues, opportunity to share solutions and for wetland managers to work together.

• The process needs to demonstrate efficiency – cost, energy and carbon.
The Challenges

• End to end
• Harvesting – wet and delicate substrates
• Rural and remote locations
• Life Cycle Analysis
• Efficiency
• Energy production and use
Phase 1

System design and life cycle analysis

- Competition launched: 8th October 2012
- Deadline for applications: 14th Nov 2012
- Application assessment: December 2012
- Design phase begins: January 2013
- Deadline for design and analysis report: March 2013
The story so far...

- 14 applications – 7 were chosen for Phase 1
- Each a consortium approach
- A range of technologies and solutions
The Technologies and solutions

- Briquetting and Pelleting
- Pyrolysis
- Gasification
- Anaerobic Digestion
Biomass to Bioenergy Scheme

**Phase 2** (preliminary demonstration and trials)
- Notification of phase 2 project selection  
  April / May 2013
- Phase 2 development commences  
  May 2013
- Phase 2 delivery and monitoring  
  May 13 – Mar 14
- Phase 2 development report  
  March 2014

**Phase 3** (final development, demonstration and trials)
- Phase 3 development commences  
  May 2014
- Phase 3 delivery and monitoring  
  May 14 – Feb 15
- Final report  
  March 2015