Production of alternative fuel from biomass arising from late mowing of Aquatic Warbler habitats - first experiences from Poland

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Biomass use for Aquatic Warblers project

Aquatic Warbler conservation

- Main problem in Poland: succession. Need of use of AW habitats (fen mires).
- Solution, fen mires mowing secured by:
  - Technical solutions - appropiate machines (piste bashers) available
  - Land available (state owned land leased)
  - Finance secured, support of Agro-Environmental Schemes, AW payments
- Remaining issues:
  - Management and utilization of large amounts of biomass
  - Sustainable funding after AES

Project objectives

- Area of suitable habitat for the Aquatic Warbler in Eastern Poland increased and its quality improved.
- Innovative systems for the use of biomass from Aquatic Warbler sites set-up, improved and tested.
- Regular ongoing management of major parts of the project sites secured through income from the use of biomass with additional support from agri-environmental schemes.
- Plans in place to guide pure conservation and business-minded conservation efforts to achieve maximum benefit for both aspects.
- Awareness is raised amongst stakeholders, using the example of biomass business for Aquatic Warblers.

Biebrza Valley

- State own land leased by Biebrza National Park 13 099 ha (on 2012/08/31), mowing on 3007 ha (according to plans of the field works for the season 2012/2013)
- Land in BNP covered by AES payments: 17.240ha (2012)
- OTOP is mowing c. 344 ha (c. 234 ha BNP and c. 110 ha BNP buffer zone) by itself every year

Biebrza Valley

- The assumed productivity of fen mire (biomass collected): 1,5-2t/ha of biomass (1-1,5t/ha of dry biomass).
- The need to utilize biomass from app. 3.000ha.
- Required efficiency to process: minimum 4.500 t of dry biomass.

No biomass solution option

- Huge amount of waste
- Potential conflicts with local communities
- No incentives for higher uptake of AES payments
- Temptation to not collect hay (lower payments by 20% but no additional costs)
- Higer cost of fen mires use

How to utilize biomass?

Possibilities of biomass use

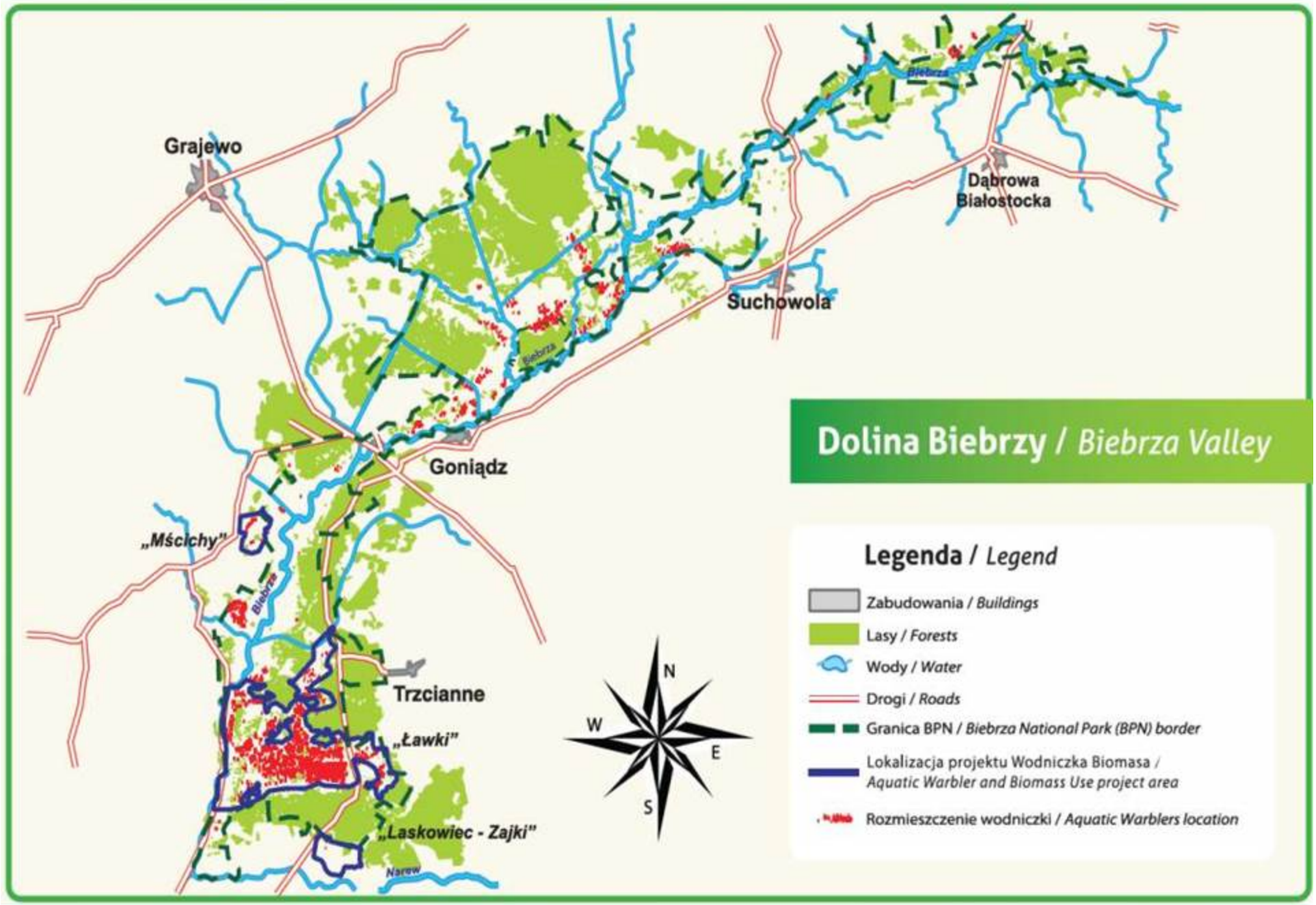
Fuel production (briquettes/pellets)

Composting

Biogas production

Pelleting line at Biebrza Valley - assumptions

- The target efficiency app. 4.500 t/year; 1t/h, production 24h, 5 days in a week.
- Aim to provide the possibility to utilize all biomass mown at Biebrza Valley.
- Pellet is sold to wholesalers (power plant etc.) and in retail


Grajewo
Dąbrowa Białostocka
Suchowola
Biebrza
Goniądz
„Mścichy"
Trzcianne
„Ławki"
„Laskowiec - Zajki"
Narew
Dolina Biebrzy / Biebrza Valley
Legenda / Legend
Zabudowania / Buildings
Lasy / Forests
Wody / Water
Drogi / Roads
Granica BPN / Biebrza National Park (BPN) border
Lokalizacja projektu Wodniczka Biomasa / Aquatic Warbler and Biomass Use project area
Rozmieszczenie wodniczki / Aquatic Warblers location
N
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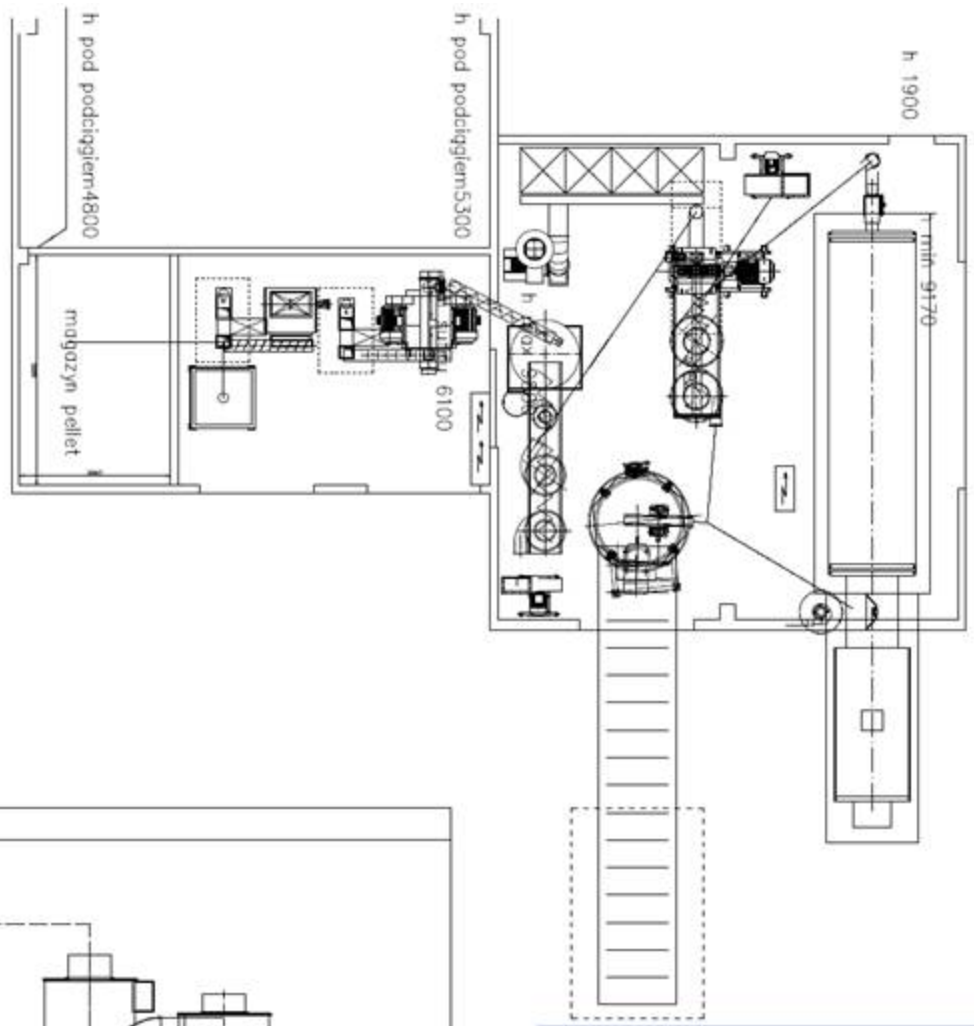
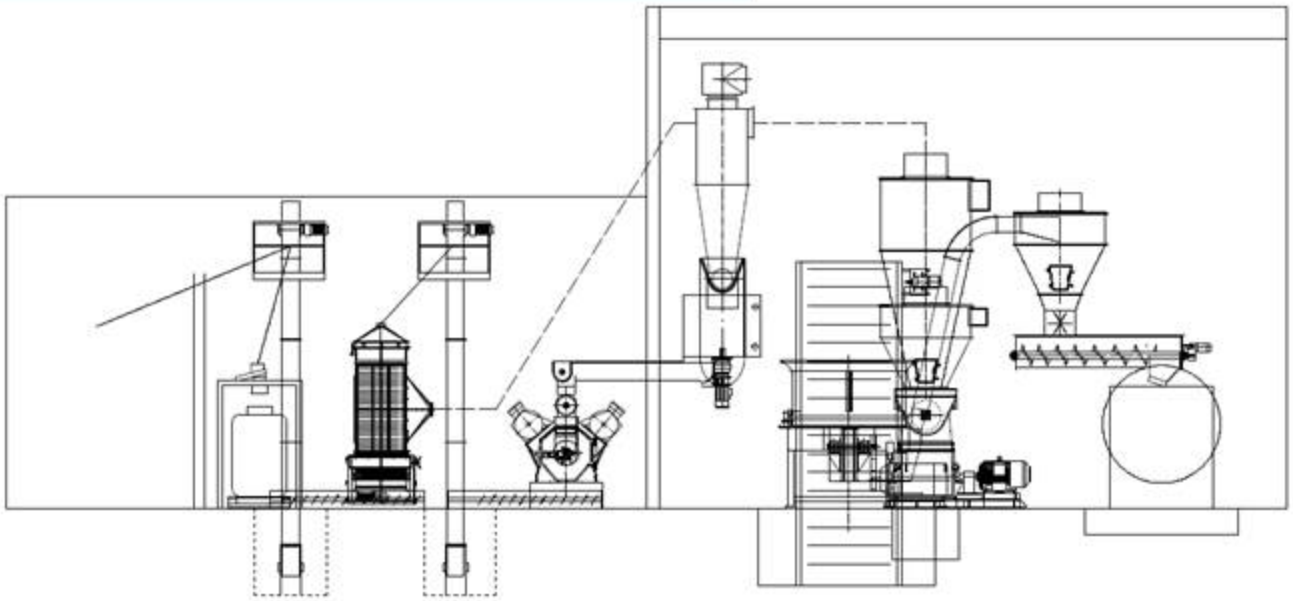
Pelleting line





Pellet produced at Biebrza Valley

- The production of app. 4t/day, up to 6,5h (one 8h shift), 5 days in a week.
- Calorific value: 14,4 – 15,8 MJ/kg (17,3-10,5% moisture)
- Ash content: 5,9%
- Sulphor: 0,13% / Nitrogen: 1,06% /Chlorium: 0,088%
- Pellet sold mainly to wholesalers (power plant).

Biomass processed at Biebrza Valley

- Secured 25% of biomass (c.2800 bales, c.850t) needed for processing at target efficiency by one shift.
- Possible to utilize high moisture (up to 70%) biomass mown at Biebrza Valley. Need to dry biomass lowers profits.
- Biomass is not moisture homogeneous (different moisture at the same bale).
- Main costs of production: energy and personnel costs.

Next steps

- Reach the target efficiency (1t/h)
- Increase the sale of pellets at the retail market
- Start work at more than one shift


Thank you!
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