The particular challenges of restoring meadows on floodplains

Emma Rothero and Irina Tatarenko
Floodplains are the prime lands for the most productive and species-rich hay meadows

Traditionally managed Lammas meadows, Hams, Ings

2980 ha remain
1350 ha MG4
1160 ha MG8
500 ha* the rest
98% of meadows were lost in 20th century

How much has been restored?

FMP project – 2015-2018
Visit restoration sites, survey,
small capital fund available

John Ellerman Foundation
The great range of restoration projects differ by:

- Management history prior restoration
- Restoration technique
- Restoration success
Floodplain meadow ecosystem

Management

Flood
Nutrients
Vegetation
Soils

Nesting birds
Pollinators
Grazers
Worms
Microbes
Fungi
Soil structure is of great importance…

… but often neglected

Jean Widdows
In 2016, visited 52 restoration fields = 222.36 ha

Nutrients e.g. high soil P resulting in dominance of few species

Waterlogging e.g. flooded after sown

Sub-optimal management e.g. sown too deep, insufficient bare earth, not annual hay cut

Sub-optimal propagules e.g. some harder to germinate species not germinated
Management advice given to 31 floodplain meadow restoration sites in England in 2016
Waterlogging and Nutrients

- Priors Ham modelled within range for MG4
- Seed and hay from North Meadow 2010, seed 2011
- Flooded for 10 months 2012/13
- Very high P recorded some years

Solution
- Early hay cuts, grazing
- Ditching
Sub-optimal management

Was - nettle and reed neglected rank grassland on peat

Conservation grazing re-instated - 15 yrs ago

2016    MG8
21-23 sp/m²
Soil compaction

If evidence (plants) indicates compaction, soil pit.

If compacted – drainage, FYM, sub-soiler, hay cut
## The value of (even basic) pre-restoration information

<table>
<thead>
<tr>
<th></th>
<th>Ideal range for restoration/creation</th>
<th>If not…</th>
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<tbody>
<tr>
<td><strong>Soil fertility</strong></td>
<td>5-25 mg/l P</td>
<td>Two hay cuts a year over a number of years will reduce P levels.</td>
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<tr>
<td><strong>Soil pH</strong></td>
<td>pH &gt; 5.5</td>
<td>Look at flood regime. Look elsewhere.</td>
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<tr>
<td><strong>Soil water levels and flooding</strong></td>
<td>Roughly matching those described in FMP handbook for (e.g.) MG4 or MG8 type community.</td>
<td>Look at internal drainage grips and management of structures</td>
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<tr>
<td><strong>Soil texture and structure</strong></td>
<td>Good soil structure (not compacted), soil profile indicates fluctuating water levels in appropriate zone.</td>
<td>If soil is compacted, may not be worth attempting restoration.</td>
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Floodplain Meadows – Beauty and Utility
A Technical Handbook

www.floodplain meadows.org.uk