**Experiment I (Split-plot design, 2 ha)**
(Forum-grassland dynamics, 10-15 years)

Water addition ($n=3$)
($>400$ mm/year)

<table>
<thead>
<tr>
<th>+ Disturbance (with animals)</th>
<th>0 Disturbance (no animals)</th>
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<tbody>
<tr>
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Ambient precipitation ($n=3$)
(ca. 360 mm/year)

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+ Seedlings of *Betula platyphylla*   +/0 seedlings   +/-0 seeds

Li Mai-He, 2013/8/5
Hypotheses to be tested

- Precipitation of <400 mm/year limits the distribution of forests (ambient precip. vs. water addition of 100 mm/a)
- Disturbance limits the distribution of forests (Animals vs. No animals)
- Lack of forest productive materials limits the distribution of forests (+seed vs. non-seed addition)
Experiment II (Split-plot design, 3-5 years)

+ Seedlings
+ Seeds

With competition

Without competition

Fencing to avoid animal disturbance

0 Seedlings
0 seeds

No fence (with animal disturbance)

Whole plot factor: Fence (n=4)
Sub plot factor: Competition (n=8)
Sub-sub plot factor: Seedlings (n=16)
Sub-sub-sub plot factor: ? (fertilizer or light intensity)

Betula platyphylla

Li Mai-He, 2013/8/5
Hypotheses to be tested

- Disturbance limits the regeneration and distribution of forests (fence vs. no fence)
- Plant competition limits the regeneration and distribution of forests (grasses removal vs. non-removal)
- Lack of forest productive materials limits the distribution of forests (+seedlings vs. non-seedlings)
- Fertilizer or light intensity???