Uprooting and burial of invasive alien plants: a new tool in coastal restoration?

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Background
Invasive alien plants are a problem for conservation management, and control of these species can be combined with habitat restoration. Subsoil burial of uprooted plants is a new method of mechanical control, which might be suitable in disturbed habitats.

The method was tested for Rosa rugosa (Japanese Rose), an invasive shrub in north-western Europe with negative effects on biodiversity in coastal dunes (Fig. 1).

Results
Two months after uprooting and burial in dunes of north-eastern Denmark, 97\% of the 58 shrubs resprouted from roots and rhizomes; on average 41 resprouts per shrub. Resprout density was twice as high at former shrub margins compared with the centre (Fig. 2).

Resprouts were taller and originated from more superficial soil layers at the shrub margin than in the centre.

Resprouting was negatively correlated with fragment depth, and no resprouts were observed from >15 cm depth (Fig. 3). The number of resprouts increased with fragment dry mass (0.5–168.5 g).

After 18 months with harrowing the species was still resprouting, flowering and fruiting, albeit with no difference between shrub margin and centre. Resprouts were taller (26 cm) and coverage was higher (0–4\%) after two times harrowing, whereas no difference was found in cover of native dune species (1–5\%).

Conclusions
- The results demonstrate that even small fragments of R. rugosa resprout, and that resprouting persists despite repeated harrowing.
- Careful subsoil burial of all fragments is necessary, special attention should be paid to the shrub margin, and follow-up treatments are needed.


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