Maternal Nutrient Availability Modulates the Seed Bank of Wild Lettuce

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Abstract
Wild lettuce (*Lactuca serriola* L.) is well known as a serious weed in arable lands. It has been also reported as an invasive plant in some areas of Europe. The aim of this study was to compare fecundity and germination ability of this species as affected by maternal nutrient availability. Wild lettuce is a winter annual plant and having a viable seed bank is crucial to establish a long-term population. It was investigated how plant size and seed production were affected by the supply of fertilizers. A pot experiment was established with nine treatments, plant growth data were collected, and fully ripe seeds were tested for germination. Wild lettuce showed high phenotypic plasticity. The number of both rosette and stem leaves per plant and plant height were high in all treatments where N and P were applied together, but low in the control and treatments in which N and P were applied separately. The number of seeds per plant was significantly affected by fertilizer treatments and ranged from 4000 in the control up to more than15000 in all treatments where N and P were applied together. It was shown that deficiency in P to the mother plants of wild lettuce despite a high N supply can result in the seeds with a lower capacity for germination. This study showed that a balanced fertilizer has a key role in the seed number and seed germination ability of wild lettuce.
Keywords: Wild lettuce, maternal nutrient, seed bank