

SUMMARY

The presented Ph.D. thesis contains an introduction and four chapters concerning herbivory of *Cirsium arvense* in its native and invasive range. The chapters include two peer-reviewed papers and two manuscripts prepared for submission. The first chapter focuses on the effect of insect herbivory on plant growth and reproduction in field conditions. *C. arvense* in four populations in the Czech Republic were measured in 2005 and 2006 (chapter 1). Observational studies in *C. arvense* were done in the Czech Republic (Europe) and Nebraska (USA), native and invasive ranges, in 2006 and 2007. I tested whether plants suffer less damage than plants from populations in the native range, as the enemy release hypothesis (Keane, Crawley 2002) states (chapter 2). Afterwards I tested for direct and indirect effects of non-overlapping herbivore insects on plant growth and reproduction (chapter 3) and compared this effect between plants from the native (Spain and the Czech Republic, Europe) and invasive range (Nebraska and Illinois, North America). In a common garden experiment herbivore insects were added alone and in combinations to *C. arvense* which were planted in the Czech Republic in March 2008 and grew from seeds for two growing seasons (chapter 3). One underground insect (*Cleonis pigra*) and 3 aboveground insect species were used (*Cassida rubiginosa*, *Rhinocyllus conicus*, *Urophora cardui*). The last chapter is focused on *C. arvense* growth from the native and invasive range in experimental conditions, the evolution of increased competitive ability (EICA) hypothesis was tested.

The first chapter demonstrates that *C. arvense* experiences high levels of herbivory, with stem damage, flower herbivory and folivory having the strongest effects on plant performance. The evidence presented in the second paper confirms that in its native range, *C. arvense* experiences more plant damage and grows less than in the invasive range. Results from the third chapter show plants with herbivore addition grew less than plants without herbivores. The effect of combined insect was bigger than the single additions, suggesting a combination of more insects would be a better solution for biological control of *C. arvense*. From the results of the experimental study presented in the fourth chapter we sum up that plants from the invasive range grew more than the ones from the native range.