

## FATE OF EASTERN REDCEDAR (*JUNIPERUS VIRGINIANA* L.) SEEDS WHEN EXPOSED TO SEED-FEEDER ARTHROPODS

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### ABSTRACT

Eastern redcedar (*Juniperus virginiana* L.) (ERC) encroachment into the Great Plains threatens agriculture and the habitat of native prairie species. The spread of ERC is through seeds only. ERC is a prolific seed producer, a mature ERC tree producing up to 1.5 million seeds per year. Dispersal of ERC seeds is aided by birds and other wildlife. Methods of control include mechanical, chemical, biological, and prescribed burning. A potential biological control method would be seed-feeder insects. In this experiment, we recorded the predation rate of seed-feeders to measure the influence they had on the viability of the seeds. Nine sites invaded by ERC along a temperature and precipitation gradient were selected. Fallen berry-like cones were collected from the ground at each site. Four replications with 100 berry-like cones per replication were randomly selected for each site. We recorded the state of the berries, and then dissected each berry and each seed inside the berry. Numbers of seed in each berry and fate of each seed, such as normal seed, shriveled seeds, hollow seeds, infested stages (e.g., larva, pupa, and adult), and presence/absence of an exit hole on the seed, were recorded. We found that seeds from many sites contained insects, and that most of the ground berries were either hollow or contained a dried embryo. The insects living in association with ERC resulted in a loss of viability of the seeds. These seed-feeders may eventually aid in controlling the spread of ERC trees.