

Abstract in English

Montane conditions represent a relatively unfavorable climate for most plants and their pollinators. Consequently, zoogamous plant species growing at high elevations are expected to be pollen limited. According to the “reproductive assurance” and “transmission advantage” hypotheses, such pollen-limited plants will adapt more toward self-pollination than plants in communities with more reliable pollination. To test such predictions, I studied reproduction strategies and pollen limitation of ten zoogamous plant species at three elevations (2,800 m a.s.l. 3,500 m a.s.l. and 4,000 m a.s.l.) in montane grasslands on Mount Cameroon, West/Central Africa. I compared seed sets produced by plants with four treatments in our extensive hand-pollination experiments: autogamy, geitonogamy, outcrossing, and natural control. One experimental species was found to be self-incompatible, six species were partially self-compatible, and one was completely self-compatible and predominantly selfing. In five of these plant species, I compared the reproduction strategies and pollen limitation among the elevations. I found that pollen limitation did rise in two species, we expect this to be due to the fact that the species were already pollen limited at 2,800 m a.s.l. Contrary to the two hypotheses, selfing did not rise with elevation in any of our experimental species at the intraspecific level. I believe it to be due to the fact that plants in our lowest elevation were not fully capable of unassisted self-pollination, which other studies have shown is necessary in species which exhibit rising selfing rates with elevations. It is however possible, that the studied species are more selfing than species in lower elevations on an interspecific level.

Key words: self-compatibility, pollen limitation, self-pollination, elevation, adaptation