

# ECOLOGICAL ASPECTS OF MAST SEEDING IN TREES

## Summary

We briefly review the evolutionary causes of mast seeding and the influence of masting on ecosystems. One of the first explanations of masting was the predator satiation hypothesis that states that the advantage of producing a large seed crop is satiation of seed predators, which thus destroy a lower percentage of the crop. Alternatively, animal dispersal hypothesis postulates that mast years result in wider dispersal of nuts by scatter hoarders, reduced probability of eating cached seeds by a hoarder, and thus enhanced likelihood of germination and seedling establishment. It is also documented that large flowering efforts increase chances of successful wind- and animal-mediated pollen transfer (wind and animal pollination hypotheses). However, these

hypotheses are not mutually exclusive and it is possible that masting has more than just one evolutionary cause. We also present the proximate factors thought to explain the phenomenon of intermittent, synchronous seeding. We describe pollen and pollinator coupling model and the role of weather cues in synchronizing plant populations over large areas. Finally, we describe trophic cascades caused by mast seeding. For example, large seed crops directly influence populations of granivorous rodents and thus indirectly alter the nest success of song birds, stop the gradation of insect pests, and change the risk of Lyme disease transmission. Such interactions might be altered when the interval between masting events decreases due to global warming.