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EFFECTS OF CLIMATE CHANGES ON INSECTS

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Abstract

Insects are more affected by climatic factors than warm-blooded animals. Climatic parameters are defined as the dominant abiotic factor directly and indirectly affecting insects; they have great importance on insect population dynamics through viability, development rates, fertility, geographic distribution and modulation of insect metabolism. Quantitative changes in a number of parameters such as moisture, rainfall, periodic repetition, solar radiation, increased CO₂, O₃, and ultraviolet light levels causes an increase in temperature, and because of being ectothermic organisms; the insects are very sensitive to these high temperatures. Many scientists foresee that world's temperature will increase from 1.0 °C to 3.5 °C by the year 2100. Invertebrates will react very rapidly to this increase in world warming. Temperature thresholds usually limit the distribution of species. As well as facilitating the establishment and dissemination of introduced alien species; climate warming is seen to play an increasingly significant role in triggering population-driven increases in indigenous species. In addition to causing some complex effects on insect populations, global warming also influences everything related to the organisms such as host plants, natural enemies, competitors. The effects of climate changes are complicated response to the average increase in temperature. Although insects' responses may differ depending on climate season and bioclimatic regions, the major responses are earlier flight periods, acceleration of development rates and improved winter survival. Slow response of insects and their hosts to global warming may also cause impaired phenological synchronicity, but adaptive genetic processes will probably renew this synchronization rapidly. In some cases, warming results in the removal of boundaries that limit the range of existing species or the replacement of their locations; and this situation is likely to make possible the establishment and spreading of invasive alien species.

Keywords: *Climate change, Insect pests, Insect populations, Alien species.*