Bibliography on Arthropoda and Air Pollution

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Abstract

This bibliography contains 227 references on literature published through 1976 concerning observations or experiments involving Arthropoda in association with gases and particles that pollute the air. References are listed in three sections: review papers, laboratory research, and field research. They are arranged by type of air pollutant: ozone, sulfur oxides, fluorides, and other pollutants. Each reference is indexed by tree host and arthropod species.

Bibliography on Arthropoda and Air Pollution

by C. John Hay

INTRODUCTION

THIS BIBLIOGRAPHY lists literature published through 1976 concerning observations or experiments involving arthropods in association with gases and particles that pollute the air.

Just before the turn of the century the industrial age was ushered in and air pollution became a problem. But it was not until the fifties that scientists began to associate damaging insect populations with air pollution. Scientific papers concerning this interaction did not appear in large numbers until the late sixties. Before 1960, the small number of published papers concerned anesthesia tests for honey bees and the testing of sulfur dioxide as a fumigant for controlling household and grain insects.

References are listed in three sections: review papers, laboratory research, and field research. Review papers cite original research by other workers. Laboratory and field research is reported in references arranged by the type of air pollutant discussed. Papers dealing with ozone (O_3) are listed first. In the section on sulfur oxides, sulfur dioxide (SO_2) is the gas investigated in all but a few papers. In the section of fluorides, hydrogen fluoride was used in most of the laboratory experiments. Fluorinated hydrocarbon gases, such as Freon C-318, were investigated in a few papers. The section on other pollutants includes dusts; particulates, such as iodine, arsenic, selenium, lead, and zinc; and carbon monoxide and nitrous oxide gases.

When a paper reports both laboratory and field work or deals with more than one type of air pollutant it is cross-referenced. When the air pollutant is not defined or the study encompasses a number of pollutants the paper is listed under *general*. Here, work with arthropods in relation to mixtures of gases and particles (smog, smoke, auto exhaust) is reported.

An (M) at the end of the reference means the paper pertains to melanism. Melanism is an abnormal darkening of the insect's body coloring, and air pollution has caused it by evolutionary changes. The diversity of species should be of interest to taxonomists, especially specialists in Lepidoptera and Coleoptera.

Dr. Bernard Kettlewell's excellent 423 page treatise, "The Evolution of Melanism" was published in 1973 by the Clarendon Press of Oxford, England. The author gives special attention to industrial melanism in the Lepidoptera.

The initial sources of references for citation here were: Air Pollution Abstracts, Air Pollu-

tion Titles, Forestry Abstracts, Abstracts of Entomology, Review of Applied Entomology, Bibliography of Agriculture, and Index to the Literature of American Economic Entomology. References cited in publications provided additional titles.

The names of periodicals are abbreviated according to the Word-Abbreviation List of the National Clearinghouse for Periodical Title Abbreviations, American National Standards Institute.

Since much of the literature is foreign, some references have undoubtedly been overlooked and therefore omitted from the bibliography. Whenever a paper in a foreign language has been translated, this is noted and the source indicated. If the paper has not been translated but an abstract is available, that is noted.

The information on the interaction of arthropods and air pollution is intended to stimulate scientific interest in this developing research area.

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