We must be concerned, for example, with the effects of pollution on the flora and fauna and the natural beauty of our wonderful land, for who would deny their value to human welfare? Since pollutants are, in large part, valuable resources out of place, we must give attention to ways of limiting, recycling, or reusing the discards and effluents of our wasteful system of production and consumption. We must be concerned with the development of technology to control pollutants. And we must help to develop a system of technology assessment or forecasting, so that we can foresee and forestall emerging problems.

To be sure that we are setting standards that fully protect our own and future generations, we need to know more, far more, about what we are doing to ourselves and our planet. Of course, we cannot wait to set and enforce standards until we know everything there is to know, for science is never immutable, and the unhappy results of our past willingness to delay and postpone are all too evident. As we seek more and better data, we must act on the knowledge we now have or accept responsibility for future environmental decay and even tragic damage to the lives and health of our own or future generations.

Believe me, I am well aware of the difficulties of achieving the integrated, multi-disciplinary, holistic approach which the problems of human ecology, by their very nature, require. We are trying to unify and integrate a variety of research programs which have been primarily categorical, to counteract the natural human and scientific tendency to over-specialization, to create a cross-fertilization of ideas – a synthesis of knowledge from the biological, physical, and social sciences which can be interpreted in terms of total human and environmental needs.

We are determined to expand and improve our environmental monitoring. For example, a new inventory of industrial wastes by major water users is being initiated, with the cooperation of industry. We have in partial operation an integrated State-Federal-industry system for monitoring environmental radiation contamination sources designed to meet the need for a new order of surveillance capability as the nuclear power industry expands. These things are essential for determining what is actually going into our environment and establishing base-lines of environmental quality.

In the biological sciences, we hope to improve our understanding of long-term exposures to environmental contaminants, of sub-acute or delayed effects on human and other organisms, of the combined and synergistic actions of chemical, biological, and physical stresses.

We must try to hasten progress in applied research relating to the control of pollutants, the recycling of so-called "wastes," and the development of sophisticated, non-polluting production processes.

Moreover, we must be able to assess the trends of technical and social change and evaluate not only their primary but potential secondary and tertiary impacts. The development of new systems of mass transit, for example, will alleviate certain important problems growing out of our current love-affair with the automobile. It will, at the same time, create new patterns of land use, possibly new sources of pollution, alterations in urban or rural life-styles. We must try to assess all of these factors as an interrelated whole, in so far as possible, as well as such matters as changing population growth rates, power needs, and laternative power sources.

We must be able to evaluate the social and economic effects of specific environmental controls, as well as the consequences of non-intervention. Such questions must be investigated simultaneously, with feedback and interchange of information among all branches of the inquiry.

EPA will be conducting and supporting research in all these matters. But we are well aware that our own science base can provide only a small part of the data which will be required to cope with pollution problems or to furnish other needed guidelines for achieving sane use of the global environment and the desired stability and harmony of the ecosystem.

To a large extent, ours will be the role of consolidating and evaluating information as it is developed throughout the scientific community. We will be drawing on the expertise and findings of other governmental scientific bodies – NOAA, the National Institute for Environmental Health Sciences, NASA, as example's – and many others. But the success of our mission and the success of the Nation in stopping the drift toward environmental chaos will depend upon the contributions of scientists everywhere toward the development of a sound scientific base for environmental action. And this depends upon many things: On concerning ourselves with the social consequences of our work, as Dr. Dubos has pointed out; on viewing our work in terms of a large whole; on establishing communication and working relationships across disciplinary lines.

There is, as we all know, a growing movement on the part of scientists to meet this challenge. Ecological centers and institutes are being established. Universities are revising their science curricula to broaden the individual student's area of interest and training. Attention is being given to the need for new institutional arrangements capable of addressing the multifaceted character of the total environmental problem. My own discipline of atmospheric science, for example, would appear to be a key component of such institutional solutions, but only in combination with other disciplines that are largely foreign to most current concepts of research colleagues. Scientists are speaking out, not only about the misapplication of scientific advance, but about science priorities, even questioning the overall desirability of some avenues of investigation. I believe all of us in science must welcome such signs of a new scientific maturity and do everything we can as scientists and as human beings to encourage and advance the trend.

The stakes are high, for the uncontrolled rush of technology propels us ever closer to the brink of environmental insanity. We can stand aside and speculate where these forces are taking us, or we can specify the future we desire and examine ways of getting there from the present. Of course, neither man nor his science is omniscient; he cannot hope to manage his environment flawlessly. But he can make choices, based on rational thinking and verifiable facts – the stuff of science.

If we can provide this thinking and these facts, we may help to usher in a new age of scientific enlightenment, an age when our study of the microcosm becomes truly relevant to our understanding of the macrocosm, an age when man can justify his long-held faith that science is the key to the elevation and advancement of the human species.

RESEARCH REPORT

A North American Elasmus Parasitic on Polistes (Hymenoptera: Eulophidae)

B. D. Burks

Systematic Entomology Laboratory, Agr. Res. Serv., USDA, c/o U.S. National Museum, Washington, D. C. 20560

ABSTRACT

Elasmus polistis Burks, new species (Hymenoptera: Eulophidae), a primary parasite of the larvae of several species of social wasps of the genus Polistes (Hymenoptera: Vespidae) in eastern United States, is described.

Not long after I published a revision of the North American species of *Elasmus* Westwood (Burks, 1965) I began receiving specimens of an *Elasmus* species that I had not included. It is a primary parasite of social wasps of the genus *Polistes.* This parasite proved to be not only common but also widespread in Eastern North America, although it had not been represented in the large amount of *Elasmus* material that had accumulated in the U.S. National Museum collection during the century before I published my revision. At first I thought it might be an immigrant species that had recently gained entrance to North America, but my search of the world fauna failed to produce a name for it. It turned out to be undescribed. Since a name for it is now needed by workers who wish to publish on the parasites of *Polistes*, I describe it here.

There are other species of *Elasmus* in the world fauna that have been recorded as parasitizing *Polistes.* Iwata and Tachikawa (1966) give *Elasmus japonicus* Ashmead as a parasite of *Polistes jadwigae* Dalla Torre in Japan. Ferrière (1947) gives *Polistes gallicus* (L.) as the host of *Elasmus schmitti* Ruschka in Europe. Masi (1935) described *Elasmus invreae* from the nest of *Polistes foederatus* Kohl in Italy, but Ferrière (1947) placed *invreae* in synonymy under *schmitti.* Erdős (1964) described *Elasmus biroi* from *Polistes opinabilis* Kohl in Hungary. Ferrière (1930) described *Elasmus lamborni* from Tanganyika, from "vespid nests." It might have been a *Polistes* parasite.

All of these foreign species have the thorax predominantly yellow, with only minute dorsal dark markings. None could be the same as the undescribed North American species, which has the thorax predominantly black, with relatively small yellow markings. The Japanese species has both the thorax and gaster yellow, unlike our species, which has the gaster black. In addition, the European species have the antennal funicular segments short, semi-quadrate. The North American species has the funicular segments elongate. As described, the African *E. lamborni* would be separated from our North American *Polistes* parasite by its predominantly yellow thorax in the female. The male of *lamborni* has the face and dorsal spots on the thorax yellow; the face and the