

## CHAPTER 1

### INTRODUCTION

The study of economic malacology is largely the story of the giant African snail, *Achatina fulica* Bowdich. More than anything else, the relatively rapid development of this species into the most serious land snail pest plaguing man today has precipitated the need for creating the separate discipline of economic malacology. But although the giant African snail dominates the subject, there are a surprising number of other land snail species, particularly those that have wandered from their native heath, which have become serious and even major garden pests. The problems presented by them will be with us for a long time to come. The giant snail and most other pestiferous species have defied all efforts to eradicate them and they seem to have the capacity to resist control measures indefinitely. Some of these snails are destined to become worse pests in the future. And new ones will make their appearance. For example, the announcement of Torres (1950) that the giant South American snail *Strophocheilus oblongus* has been attacking the coffee plant seems patently prognosticative.

The groundwork from which economic malacology has emerged was laid largely during the multifold campaign to control the giant African snail in the Indo-Pacific region. Initial research was conducted in Southeast Asia, particularly in Ceylon, Malaya, Singapore, and Java. In the Pacific, it was the Insect Control Committee for Micronesia (which later became the Invertebrate Consultants Committee for the Pacific) of the Pacific Science Board of the National Research Council that led the way in the program of delving into some of the deeper problems associated with the economics of land snails, and of the giant African snail in particular. It was not known how far the giant snail had spread; how it was spreading; why it was

spreading so rapidly; why it was building up in unprecedented numbers; to what extent it was really causing horticultural and agricultural damage; whether it ever practicably could be used for human consumption; or what control measures—chemical, mechanical, biological, legislative—have been attempted with what measure of success. The early investigations led to new and unsuspected findings. The enigmatic phenomenon of population decline has been shown to produce dramatic results in some of the older snail populations. Disease as a factor in natural control has just entered the increasingly more complex ecological picture. Other phenomena are hanging in the near shadows.

In an effort to determine the amount of research currently in progress in the problem of the giant African snail, letters of inquiry were sent to all major infested areas, either to known investigators or to directors of agriculture. The response was disheartening in the extreme. With only a few exceptions, the answers presented one or more of a host of good reasons why no work, except perhaps for a small amount of routine control, was being done on the problem. Irrespective of the validity of most of the good reasons, the situation is indeed deplorable, especially when it is compared with that of other types of major agricultural pests. Time after time, however, there could be sensed the tacit confession that, regardless of the excuses offered, too little was actually known or could be discovered about snail problems. They would complain: "We are fighting in the dark." "We do not know what control measures have been tried." "Our experimental results have been inexplicably inconsistent." It is little wonder that many investigators have become discouraged and have actually turned their backs to the problem.

With the emergence of the discipline of economic malacology out of the grief caused by the giant African snail, we must look both to the past and to the future. We must survey critically the many and varied contributions regarding both the giant snail and other snails; and we must look at what lies ahead so that we will be in better position to tackle the predictably worsening problems and still other problems yet to come. As a matter of fact, we have right now weapons of control which ironically are not generally known by those who are charged with trying to effect controls. In some cases, discoveries of a complementary nature in research have not yet been brought together. Wholly unpredictable avenues of approach will be discovered when all pertinent information extant is brought together and synthesized. Even to this day, problems in economic malacology are invariably passed on to the economic entomologist, who finds his

knowledge of malacology too limited (if indeed it exists at all) and the insect control methods almost completely useless to him. This places a premium on putting into the proper hands all available pertinent information on the economics of terrestrial snails. Attempts are made in the following pages to do just this.

Now that there has been brought together at last the rather substantial fund of information tucked away in the far corners of the literature, and this has been combined with the discoveries in recent research, it is hoped that investigators in many quarters will be stimulated with renewed enthusiasm to take vigorous steps in seeking the answers to a host of major and fundamental questions surrounding the giant African snail and other land snail pests. When this becomes a reality, economic malacology truly will be on its way.