
INTRODUCTION

The goal of this handbook is to consolidate information on some of the different **arthropods, vertebrates and weeds** that may be encountered in community environments in the desert southwest United States and present it in a concise, reader-friendly manner, complete with photographs. This handbook is intended for anyone who lives, learns, works, plays, or engages in any activity in community environments. **Our goal is to provide basic information to help readers decide whether organisms they may come across in these environments are pests or not.** Management measures for individual organisms are not presented, but section III: ‘IPM in Community Environments’ summarizes IPM (Integrated Pest Management) steps that are applicable to manage most of these organisms in a practical, safe and sustainable manner. Sources that provide information on specific management measures for individual pests are also listed at relevant places. This handbook can be used by researchers and extension personnel focusing on community IPM, homeowners, pest management professionals, school and child care personnel, public health professionals, students and any member of the general public seeking information on these organisms.

The title of this publication, “Handbook on Pests of Community Environments in the Desert Southwest United States”, requires a few definitions.

The term “**pest**” is not well-defined, and varies with the situation. In the broadest sense and from a human perspective, a pest is any organism that competes or interferes with human interests, or is detrimental to humans or human concerns including pet animals, livestock, structures and crops. This can include insects and other arthropods such as spiders, mites, ticks and scorpions; some vertebrates, including amphibians, reptiles, birds and mammals; plants that are weeds; and microorganisms including some fungi, bacteria and viruses. An organism that is a pest in one situation may not be a pest in another. For example, a spider in the garden may be a welcome predator that consumes pest insects, but one indoors may be considered a pest. Determining an organism’s status as a pest or non-pest is a crucial one, and is often the basis for pest management efforts. To make this decision, it is important to correctly identify the various organisms that are encountered in community environments, and to understand the role they play as parts of the ecosystem. Very often, pest control efforts are directed at organisms that are in fact harmless or even beneficial!

A “**community environment**” is a social unit of any size that is unified by space or the interests of its inhabitants, where humans interact with the natural environment at varying levels. Examples of community environments include homes and surrounding properties, schools (including grounds), hospitals and medical facilities, parks and recreational areas, offices and business complexes, hotels and restaurants, and a variety of other spaces created by humans for specific needs, purposes and activities. Community environments are ‘people-centered’, and it is the presence of people that makes these environments different from wild or natural areas that have minimal human presence. In contrast, agricultural areas have

high human interference, but are focused on mass cultivation of crops. Accordingly, the concepts of pests and pest management often differ among these environments.

The flora and fauna encountered in community environments is largely governed by the climatic conditions in the region, and by human interventions. The geographical area covered in this handbook is the **desert southwestern United States**, which is again not a clearly defined area. However, for our purposes, this area will include the states of Arizona, California, Colorado, Nevada, New Mexico, Utah, west Texas and Tribal Nations within these boundaries (Fig.1). Community environments in this part of the country are unique due to the presence of plants and animals native to the arid low desert conditions, many of which may not be encountered elsewhere in the U.S., or the world. However, many organisms have been introduced to this region either naturally by their own movement, or via human activities and have become well established here, as in other parts of the world.



Fig.1. Map of the United States of America showing the geographic area covered in the handbook

The most sensible, economical and sustainable method of pest management in any situation is **integrated pest management** or **IPM** (see section III). There is an increasing awareness of the benefits of community IPM practices, as people realize the importance of environmental stewardship. However, this is also accompanied by changes in pest situations and management options due to new pest introductions and changes in availability of treatment measures such as pesticides. This changing scenario demands creation of updated resources in a convenient format that will help people to sustain their IPM efforts. This handbook is our response to such demands.

HOW TO USE THIS BOOK

The handbook is organized into sections based on categories of pests causing different kinds of concerns, such as biting and venomous pests, general household pests, public health pests, stored product pests, etc. Each section is divided into pest groups, (e.g., ‘Cockroaches’ within general household pests), and individual pests within each group, are described following a common format (see below). A short description about most of the important pest groups is provided at its beginning.

The descriptions of individual ‘pests’ are organized in the following format:

Common name(s): Commonly used or popular common names of the organism.

Scientific name, classification: Scientific name: genus, species (and synonyms, where applicable), family and order of the organism. Subfamily and suborder are included in certain cases to describe certain unique or characteristic features.

“Different genera” is used when the common name refers to species in more than one genus. If the common name refers to different species under one genus only, then the genus name is mentioned, followed by ‘spp.’

Distribution: Geographic area where the organism is known to be distributed.

Description and ID characters: Broad description of the physical appearance of the organism, and other notable facts (e.g., important vector of a disease), where applicable.

Best identifying feature(s): A continuation of the description focusing on the most characteristic features that enable identification.

Pest status (for arthropods and vertebrates): Whether the organism is a pest or non-pest. If pest, a brief description, e.g., nuisance pest, or important structural pest.

Damage/injury (for arthropods and vertebrates): Detailed description of the types of damage or injury caused by the organism.

Life history (for arthropods and vertebrates): Brief description of the various life stages, habitat and food habits of the organism.

Habitat (for weeds): The different types of locations where the plant may be found, e.g., crop fields, turf, parks, etc.

Life cycle (for weeds): Seasonality and growth cycle, e.g., winter annual.

Propagation (for weeds): Means by which the plant reproduces, e.g., seeds.

Similar plants (for weeds): Other related or unrelated plants that might resemble the plant being described.

Descriptive photographs of different life stages or aspects of activity of each organism are included along with the description, to aid in correct identification.

Technical terms used in the book are listed in the chapter “Glossary of Terms”, along with brief explanations.