

# Handbook on Pests of Community Environments in the Desert Southwest United States



## **Authors**

**Shaku Nair  
Dawn H. Gouge  
Mike Rust  
Shujuan Li  
Ursula Schuch  
Al Fournier  
Dave Kopec  
Kai Umeda  
Paul Baker  
Lydia Brown  
Naresh Duggal**



This project was funded in part by the USDA National Institute of Food and Agriculture, through the Western Integrated Pest Management Center.



## **Grant participants**

### **Principal Investigators**

Shaku Nair, University of Arizona  
Dawn H. Gouge, University of Arizona  
Mike Rust, University of California, Riverside  
Shujuan Li, University of Arizona  
Ursula Schuch, University of Arizona  
Al Fournier, University of Arizona  
Dave Kopec, University of Arizona  
Kai Umeda, University of Arizona  
Paul Baker, University of Arizona  
Lydia Brown, University of Arizona  
Naresh Duggal, County of Santa Clara, California  
Angela O'Callaghan, University of Nevada  
M.L. Robinson, University of Nevada

### **Collaborators**

Andrew Sutherland, University of California Cooperative Extension  
Dan Vezie, Maricopa Unified School District  
Anthony Scarfo, Phoenix Union High School District  
Tony McCandless and Dan Hoyt, Gila River Indian Community  
Department of Environmental Quality

Project end: 28 February 2015

### **Contact:**

Shaku Nair, PhD.  
Assistant in Extension, Community IPM  
University of Arizona - Maricopa Ag. Center  
37860 W. Smith-Enke Road  
Maricopa, AZ 85138-3010  
Office: (520) 374-6299  
[nairs@email.arizona.edu](mailto:nairs@email.arizona.edu)



**COLLEGE OF AGRICULTURE  
AND LIFE SCIENCES**  
**COOPERATIVE EXTENSION**

## Acknowledgements

We wish to thank the following individuals/organizations for their help in making this publication a reality.

The United States Department of Agriculture-National Institute of Food and Agriculture and the Western Region IPM Center for providing funding to undertake this effort.

Our stakeholders: school and home IPM practitioners and advocates, who expressed the need for an identification guide specifically on pests of the desert southwest to support their work, based on which we constructed our grant proposal and executed this project.

Hundreds of photographers, who graciously provided permission to use their work for the cause of extension and education, and thereby greatly enhanced the quality of this publication. They are too numerous to be listed here individually, but each photographer or organization is credited under their respective photographs. All photographs are the property of the respective individuals/organizations and specific permissions must be sought for reuse.

Benjamin Lowe, University of Minnesota, Eric Gofreed, DVM and Stacey Bealmear, University of Arizona Cooperative Extension for critical review of the sections on reptiles, mammals and plant pests respectively, which helped us to improve them remarkably.

# Handbook on Pests of Community Environments in the Desert Southwest United States

## Contents

I.	<b>Introduction</b> .....	1
II.	<b>How to use this book</b> .....	3
III.	<b>IPM in Community Environments</b> .....	4
IV.	<b>Pests</b>	
	<b>Biting, stinging and venomous pests</b> .....	6
	Insects.....	6
	Bees.....	6
	Wasps.....	14
	Non-insects.....	23
	Scorpions.....	23
	Spiders.....	26
	Scorpion/spider look-alikes.....	30
	<b>General household pests</b> .....	34
	Ants.....	34
	Cockroaches.....	48
	Flies.....	58
	Other minor household pests.....	75
	<b>Plant pests</b> .....	86
	Chewing pests.....	86
	Sap-sucking pests.....	95
	<b>Public health pests</b> .....	108
	Insects.....	108
	Non-insects.....	123
	<b>Stored product pests</b> .....	129
	Pests of stored food.....	129
	Pests of fabric.....	144
	<b>Structural pests/wood damaging pests</b> .....	150
	Termites.....	150
	Wood-damaging beetles.....	161
	<b>Vertebrates</b> .....	168
	Mammals.....	168
	Reptiles.....	200
	Birds.....	210
	<b>Weeds</b> .....	215
	Broadleaved weeds-winter annuals, summer annuals.....	217
	Grasses-winter annuals, summer annuals.....	239
	Perennial weeds.....	248
V.	<b>Glossary of Terms</b> .....	258
VI.	<b>Index of common names</b> .....	272