

Cambridge University Press

978-0-521-56643-8 - Plant Functional Types: Their Relevance to Ecosystem Properties and Global Change

Edited by T. M. Smith, H. H. Shugart and F. I. Woodward

[Table of Contents](#)[More information](#)

## Contents

**List of Contributors ix****Preface xiii**

---

**Part one**

- 1 What are functional types and how should we seek them? 3

*H. Gitay and I. R. Noble*

- 2 Plant and ecosystem functional types 20

*H. H. Shugart*

---

**Part two**

- 3 Plant functional types: towards a definition by

*environmental constraints 47**F. I. Woodward and C. K. Kelly*

- 4 Can we use plant functional types to describe and predict responses  
to environmental change? 66

*R. J. Hobbs*

- 5 Functional types in non-equilibrium ecosystems 91

*B. H. Walker*

- 6 Categorizing plant species into functional types 104

*M. Westoby and M. Leishman*

- 7 Functional types: testing the concept in Northern England 122

*J. P. Grime, J. G. Hodgson, R. Hunt, K. Thompson, G. A. F. Hendry,  
B. D. Campbell, A. Jalili, S. H. Hillier, S. Diaz and M. J. W. Burke*

---

**Part three**

- 8 Plant functional types and ecosystem change in arctic tundras 153

*G. R. Shaver, A. E. Giblin, K. J. Nadelhoffer and E. B. Rastetter*

## viii CONTENTS

- 
- 9 Functional types for predicting changes in biodiversity: a case study in Cape fynbos 174  
*W. J. Bond*
- 10 Defining functional types for models of desertification 195  
*J. F. Reynolds, R. A. Virginia and W. H. Schlesinger*
- 11 Plant functional types in temperate semi-arid regions 217  
*O. E. Sala, W. K. Lauenroth and R. A. Golluscio*
- 12 Interactions between demographic and ecosystem processes in a semi-arid and an arid grassland: a challenge for plant functional types 234  
*W. K. Lauenroth, D. P. Coffin, I. C. Burke and R. A. Virginia*
- 13 Plant functional types in African savannas and grasslands 255  
*R. J. Scholes, G. Pickett, W. N. Ellery and A. C. Blackmore*

---

Part four

- 14 Using plant functional types in a global vegetation model 271  
*W. Cramer*
- 15 The use of plant functional type classifications to model global land cover and simulate the interactions between the terrestrial biosphere and the atmosphere 289  
*R. Leemans*

---

Part five

- 16 Examining the consequences of classifying species into functional types: a simulation model analysis 319  
*T. M. Smith*
- 17 Ecosystem function of biodiversity: the basis of the viewpoint 341  
*H. A. Mooney*
- 18 Defining plant functional types: the end view 355  
*F. I. Woodward, T. M. Smith and H. H. Shugart*

---

Index 361