1. Record Nr. UNINA9910830905403321

Titolo	Plant ecology [[electronic resource] /] / edited by Michael J. Crawley
Pubbl/distr/stampa	Oxford [England] ; ; Cambridge, MA, : Blackwell Science, 1997
ISBN	1-282-68914-2 9786612689147 1-4443-1364-9 1-4443-1363-0
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (741 p.)
Altri autori (Persone)	CrawleyMichael J
Disciplina	581.5 581.7
Soggetti	Plant ecology Botany
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 633-699) and index.
Nota di contenuto	PLANT ECOLOGY, SECOND EDITION; Contents; List of Contributors; Preface to the Second Edition; Preface to the First Edition; 1: Photosynthesis; 1.1 Introduction; 1.2 Background; 1.2.1 Photochemical reactions; 1.2.2 Biochemical reactions; 1.3 Environmental influences on photosynthetic capacity; 1.3.1 Light; 1.3.2 Carbon dioxide; 1.3.3 Temperature; 1.3.4 Photosynthesis with respect to water use; 1.3.5 Energy balance considerations; 1.3.6 Nutrients; 1.3.7 Atmospheric pollutants; 1.4 Seasonality of photosynthesis; 1.4.1 Individual leaves; 1.4.2 Whole plants 1.5 Photosynthetic capacity and defence against herbivores1.6 Variations on the basic photosynthetic pathway; 1.7 Ecological consequences of different photosynthetic pathways; 1.7.1 Water-use efficiency; 1.7.2 Significance of temperature; 1.8 Climate change and photosynthesis; l.8.1 Photosynthesis in the recent past and near-future CO2 environments; 1.8.2 Climate change and the evolution of photosynthetic pathways; 1.9 Conclusions; 2: Plant Water Relations; 2.1 Introduction: water and life; 2.1.1 Water as a physical and chemical medium; 2.1.2 State of water in the plant 2.1.3 Acquiring and conserving water on land2.1.4 Water as a limiting

resource; 2.2 Transpiration rate; 2.2.1 Energetics; 2.2.2 Stomatal conductance; 2.3 Soil-plant-atmosphere continuum; 2.3.1 Pathway; 2.3.2 Pipe model of hydraulic architecture; 2.3.3 How vulnerable is the pipeline?; 2.4 Water relations and plant distribution patterns; 2.5 Water, carbon and nutrient relations; 2.6 Concluding remarks; 3: Nutrient Acquisition; 3.1 Availability of nutrients; 3.2 Nutrient uptake by root systems; 3.2.1 Transport through the soil; 3.2.2 Transport across the root
3.3 Responses to nutrient deficiency3.3.1 Modifying the rhizosphere; 3.3.2 Resource allocation; 3.3.3 Symbioses; 3.4 Heterogeneity; 3.4.1 Patchiness; 3.4.2 Response to patches; 3.4.3 Turnover; 3.5 Summary; 4: Life History and Environment; 4.1 Introduction; 4.2 Neighbourhoods; 4.3 Life history; 4.3.1 The growth forms of plants; 4.3.2 Annual plants; 4.3.3 Monocarpic perennials; 4.3.4 Herbaceous perennial plants; 4.3.5 Trees and shrubs; 4.4 Trade-off; 4.4.1 Colonization/competitive ability; 4.4.2 Root growth/shoot growth; 4.4.3 Palatability/competitive ability; 4.4.4 Seed size/seed number
4.4.5 Seed size/seedling performance4.4.6 Seed size/dormancy; 4.4.7 Dormancy/dispersal; 4.4.8 Longevity/growth rate; 4.4.9 Longevity/reproductive output; 4.4.10 Resource extraction/growth rate; 4.4.11 Defence/growth rate; 4.4.12 Growth/reproduction; 4.4.13 Male/female reproductive function; 4.4.14 Shade growth rate/shade death rate; 4.4.15 Gap/forest regeneration niche; 4.4.16 Sun leaves/shade leaves and water/light; 4.4.17 Growth rate/nutrient retention; 4.4.18 Fruit weight/seed weight; 4.4.19 Pollen quantity/pollen quality; 4.4.20 Flammability/competitive ability; 4.5 Canopy architecture
4.5.1 Modular growth

Sommario/riassunto

Plant ecology is the scientific study of the factors influencing the distribution and abundance of plants. This benchmark text, extremely well received in its first edition, shows how pattern and structure at different levels of plant organization--from ecophysiology through population dynamics to community structure and ecosystem function--are influenced by abiotic factors (eg, climate and soils) and by biotic factors (eg, competition and herbivory). Adopting a dynamic approach, this book combines descriptive text with theoretical models and experimental data. It will be invaluable reading fo