

1. Record Nr.	UNINA9910809107203321
Titolo	Stable isotopes as indicators of ecological change // edited by Todd E. Dawson, Rolf T. W. Siegwolf
Pubbl/distr/stampa	London ; ; Burlington, MA, : Academic Press, 2007
ISBN	1-281-02932-7 9786611029326 0-08-055100-9
Edizione	[1st ed.]
Descrizione fisica	1 online resource (436 p.)
Collana	Terrestrial ecology series
Altri autori (Persone)	DawsonTodd E. <1955-> SiegwolfRolf T. W
Disciplina	577.01541388
Soggetti	Stable isotopes in ecological research Stable isotope tracers Environmental monitoring Global environmental change - Measurement
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 and index.
Nota di contenuto	Front Cover; Stable Isotopes as Indicators of Ecological Change; Copyright Page; Contents; Contributors; Acknowledgments; Preface; Section 1: Ecological Isotope Archives; Chapter 1: Using Stable Isotopes as Indicators, Tracers, and Recorders of Ecological Change: Some Context and Background; I. Context for Book; II. Isotopes as Tracers, Records, and Integrators of Change; III. Stable Isotope Notation; IV. The Stable Isotope Composition of Materials in Biogeochemical Cycles; A. Variation in the delta13C in Carbon Cycle Processes B. Variation in the delta18O, Delta17O, and delta2H in Hydrologic Processes C. Variation in the delta15N in the Nitrogen Cycle Processes; D. Variation in the delta34S and 87Sr/86Sr in Mineral Cycle Processes; V. Summary; VI. Acknowledgments; VII. References; Chapter 2: Stable Isotopes Record Ecological Change, but a Sampling Network Will be Critical; References; Section 2: Plant-based Isotope Data as Indicators of Ecological Change; Chapter 3: Extracting Climatic Information from Stable Isotopes in Tree Rings; I. Introduction; A. Fundamentals of the Tree Ring Proxies; B. Scope

II. Signal Preservation A. Carbon Isotopes; B. Oxygen and Hydrogen Isotopes; III. Sample Preparation and Analysis; A. Site Selection and Sampling; B. Sample Preparation; C. Isotopic Analysis; IV. Replication and Quantification of Signal Strength; A. Replication; B. Signal Strength; V. Nonclimatic Trends; A. Age-Related Trends; B. Correction for Atmospheric $\delta^{13}\text{C}$ and CO_2 ; VI. Calibration and Mechanistic Modeling; A. Laanila, Northern Finland: A Carbon Isotope Case Study; B. Climate Reconstruction from Oxygen and Hydrogen Isotopes; C. Multiparameter Dendroclimatology; VII. Conclusions
VIII. Acknowledgments. References; Chapter 4: Human Impacts on Tree-Ring Growth Reconstructed from Stable Isotopes; I. Introduction; II. Sites and Sample Preparation; III. Isotope Theory; IV. Results and Discussion; A. $\delta^{13}\text{C}$ and Water-Use Efficiency; B. Combining $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$; C. Case Study in Air Pollution Research; V. Conclusions and Outlook; VI. Acknowledgments; Chapter 5: Oxygen Isotope Proxies in Tree-Ring Cellulose: Tropical Cyclones, Drought, and Climate Oscillations; I. Introduction; II. A Tree-Ring Isotope Record of Tropical Cyclones and Climate
A. Climate Modes Influencing Tropical Cyclone Occurrence B. Isotopic Compositions of Tropical Cyclone Precipitation; C. Oxygen Isotope Compositions of Tree-Ring Cellulose; III. Materials and Methods; IV. Results and Discussion; A. Testing the Tree-Ring Isotope Proxy Record of Tropical Cyclone Activity; B. A Proxy for Seasonal Drought; C. Decadal to Multidecadal Scale Variations in Tree-Ring Oxygen Isotopes; V. Conclusions; VI. References; Chapter 6: The Stable Isotopes $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ of Lichens Can Be Used as Tracers of Microenvironmental Carbon and Water Sources; I. Introduction
II. Lichen $\delta^{13}\text{C}$ as Tracer for Carbon Acquisition, Carbon Source, and Global Change

Sommario/riassunto

The 20th century has experienced environmental changes that appear to be unprecedented in their rate and magnitude during the Earth's history. For the first time, this special volume brings together a wide range of perspectives and data that speak directly to the issues of ecological change using stable isotope tracers. The information presented originates from a range of biological and geochemical sources and from research fields within biological, climatological and physical disciplines covering time-scales from days to centuries. Unlike any other reference, editors discuss where isotope
