

Matrix population models from 20 studies of perennial plant populations

Ecological Archives E093-083

MARTHA M. ELLIS,^{1,22} JENNIFER L. WILLIAMS,² PETER LESICA,³ TIMOTHY J. BELL,⁴ PAULETTE BIERZYCHUDEK,⁵
MARLIN BOWLES,⁶ ELIZABETH E. CRONE,⁷ DANIEL F. DOAK,⁸ JOHAN EHRLÉN,⁹ ALBERTINE ELLIS-ADAM,¹⁰
KATHRYN MCEACHERN,¹¹ RENGAIAN GANESAN,¹² PENELOPE LATHAM,¹³ SHEILA LUITEN,¹⁰ THOMAS N. KAYE,¹⁴
TIFFANY M. KNIGHT,¹⁵ ERIC S. MENGES,¹⁶ WILLIAM F. MORRIS,¹⁷ HANS DEN NIJS,¹⁰ GERARD OOSTERMEIJER,¹⁰
PEDRO F. QUINTANA-ASCENCIO,¹⁸ J. STEPHEN SHELLY,¹⁹ AMANDA STANLEY,¹⁴ ANDREA THORPE,¹⁴ TAMARA TICKTIN,²⁰
TERESA VALVERDE,²¹ AND CARL W. WEEKLEY¹⁶

¹Wildlife Biology Program, College of Forestry and Conservation, University of Montana, Missoula, Montana 59812 USA

²National Center for Ecological Analysis and Synthesis, 735 State Street, Suite 300, Santa Barbara, California 93101 USA

³Division of Biological Sciences, University of Montana, Missoula, Montana 59812 USA

⁴Department of Biological Sciences, Chicago State University, 9501 S King Drive, Chicago, Illinois 60628 USA

⁵Biology Department, Lewis and Clark College, 0615 S.W. Palatine Hill Road, Portland, Oregon 97219 USA

⁶The Morton Arboretum, 4100 Illinois Route 53, Lisle, Illinois 60532 USA

⁷Harvard University, Harvard Forest, 324 North Main Street, Petersham, Massachusetts 01366 USA

⁸Department of Zoology and Physiology, University of Wyoming, Laramie, Wyoming 82071 USA

⁹Department of Botany, Stockholm University, SE-106 91 Stockholm, Sweden

¹⁰Institute for Biodiversity and Ecosystem Dynamics, University of Amsterdam, Science Park 904, 1098 XH, Amsterdam, The Netherlands

¹¹USGS-BRD-WERC, Channel Islands Field Station, 1901 Spinnaker Drive, Ventura, California 93001 USA

¹²Ashoka Trust for Research in Ecology and the Environment (ATREE), Royal Enclave, Srirampura, Jakkur Post, Bangalore 560064, India

¹³National Park Service, Pacific West Region, 909 First Avenue, Seattle, Washington 98104 USA

¹⁴Institute for Applied Ecology, P.O. Box 2855, Corvallis, Oregon 97339 USA

¹⁵Department of Biology, Washington University in St. Louis, One Brookings Drive, Box 1137, St. Louis, Missouri 63130 USA

¹⁶Archbold Biological Station, P.O. Box 2057, Lake Placid, Florida 33862 USA

¹⁷Biology Department, Duke University, Box 90338 Durham, North Carolina 27708 USA

¹⁸Department of Biology, University of Central Florida, 4000 Central Florida Boulevard, Orlando, Florida 32816 USA

¹⁹U.S. Forest Service, Region 1, P.O. Box 7669, Missoula, Montana 59807 USA

²⁰Botany Department, University of Hawai'i at Manoa, 3190 Maile Way, Honolulu, Hawai'i 96822 USA

²¹Departamento de Ecología y Recursos Naturales, Facultad de Ciencias, Universidad Nacional Autónoma de México, Ciudad Universitaria, México D.F. 04510 México

Abstract. Demographic transition matrices are among the most commonly applied population models for both basic and applied ecological research. The relatively simple framework of these models and simple, easily interpretable summary statistics they produce have prompted the wide use of these models across an exceptionally broad range of taxa. Here, we provide annual transition matrices and observed stage structures/population sizes for 20 perennial plant species which have been the focal species for long-term demographic monitoring. These data were assembled as part of the “Testing Matrix Models” working group through the National Center for Ecological Analysis and Synthesis (NCEAS). The data represent 82 populations with >460 total population-years of observations. It is our hope that making these data available will help promote and improve our ability to monitor and understand plant population dynamics.

Key words: conservation; Demographic matrix models; ecological forecasting; extinction risk; matrix population models; plant population dynamics; population growth rate.

The complete data sets corresponding to abstracts published in the Data Papers section of the journal are published electronically in *Ecological Archives*: <http://esapubs.org/archive> (the accession number for each Data Paper is given directly beneath the title).