
Conservation and Ecosystem Services

Seed size effects on seed dispersal and predation by rodents at tree individual level

Bo Wang

Center for Integrative Conservation, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, Mengla, Yunnan province 666303, China, yangblue@xtbg.org.cn

Seed predation and dispersal by scatter-hoarding rodents play an important role not only on the seedling regeneration of trees, but also on the spatial distribution and structure composition of the whole forest communities. Both seed size and seed density have been found significantly affect the foraging preferences of rodents, which in turn influence the seed fates themselves. Current studies focusing on how seed size and seed density affect foraging behaviour of scatter-hoarding rodents mainly target one of two scales of comparison: the species scale, with comparisons of dispersal and predation of seeds from multiple species; or the individual seed scale, with comparisons among individual seeds from the same species. Even though individual variation in reproductive success within populations is a key component of evolutionary fitness, variation in seed dispersal and predation at the scale of individual trees is poorly understood. Our study asks how variation in seed mass and number among tree individuals affects the behaviour of animal dispersers and in turn the fitness of the trees. We first surveyed intraspecific variation in seed production of two *Fagaceae* tree species in a natural subtropical forest in south-western China. We then investigated how this variation affects seed predation and dispersal by scatter-hoarding rodents, which were the primary seed dispersers/predators. We weighed and then followed the fate of 11,618 seeds from 54 tree individuals to determine their survival and, if they survived, the distance they were dispersed. Our results showed a large variation of seed production among individuals in both tree species, including number of seeds, mean seed mass, the coefficient of variation (CV) of seed mass. The total number of seeds, the CV of seed mass and the crown size significantly affect the seed fates among tree individuals, but their effects differed between tree species.

4 5 9

Julius-Kühn-Archiv

Jens Jacob, Jana Eccard (Editors)

6th International Conference of Rodent
Biology and Management
and
16th Rodens et Spatium

Potsdam, Germany, 3-7 September 2018

Book of Abstracts



Julius Kühn-Institut
Bundesforschungsinstitut für Kulturpflanzen

4 5 9

Julius-Kühn-Archiv

Jens Jacob, Jana Eccard (Editors)

6th International Conference of Rodent
Biology and Management
and
16th Rodens et Spatium

Potsdam, Germany, 3-7 September 2018

Book of Abstracts



Editors:

Jens Jacob¹ and Jana Eccard²

¹Julius Kühn Institute, Federal Research Centre for Cultivated Plants,
Institute for Plant Protection in Horticulture and Forests, Vertebrate Research,
Toppeideweg 88, 48161 Münster, Germany

²University of Potsdam, Institute of Biochemistry and Biology,
Animal Ecology Group, Maulbeerallee 1,
14469 Potsdam, Germany

Local Organizing Committee:

Jana Eccard, University of Potsdam

Jens Jacob, Julius Kühn Institute, Federal Research Centre for Cultivated Plants, Münster

Daniela Reil, Julius Kühn Institute, Federal Research Centre for Cultivated Plants, Münster

Christiane Scheffler, University of Potsdam

Elke Seydewitz, University of Potsdam

Scientific organising committee:

Emil Tkadlec (Czech Republic); Frauke Ecke (Sweden); Grant Singleton (Philippines); Heikki Henttonen (Finland); Jana Eccard (Germany); Jens Jacob (Germany); Lyn Hinds (Australia); Prince Kaleme (Congo); Xavier Lambin (UK); Zhibin Zhang (China)

International Steering Committee Rodens et Spatium:

Abraham Haim (Israel); Alexey Surov (Russia); Ana Maria Benedek (Romania); Boris Krasnov (Israel);

Emil Tkadlec (Czech Republic); Éric Le Boulengé (Belgium); Farida Khammar (Algeria);

František Sedláček (Czech Republic); Gert Olsson (Sweden); Grant Singleton (Australia);

Heikki Henttonen (Finland); Jan Zima (Czech Republic); Jean-François Cosson (France); Linas Balčiauskas

(Lithuania); Maria da Luz Mathias (Portugal); Molly McDonough (USA); Mustafa Sözen (Turkey);

Nigel Yoccoz (Norway); Olga Osipova (Russia); Takuya Shimada (Japan); Victor Sánchez Cordero (Mexico);

Xavier Lambin (United Kingdom); Yasmina Dahmani (Algeria)

International Steering Committee**International Conference of Rodent Biology and Management:**

Andrea Byrom (New Zealand); Charley Krebs (Canada); Grant Singleton (Philippines); Jens Jacob (Germany);

Jiqi Lu (China); Lyn Hinds (Australia); Nico Avenant (South Africa); Peter Banks (Australia);

Peter Brown (Australia); Regino Cavia (Argentina); Rhodes Makundi (Tanzania); Roger Pech (New Zealand);

Steven Belmain (UK); Sudarmaji (Indonesia); Zhibin Zhang (China)

Bibliografische Information der Deutschen Nationalbibliothek

Die Deutsche Nationalbibliothek verzeichnet diese Publikation

In der Deutschen Nationalbibliografie: detaillierte bibliografische

Daten sind im Internet über <http://dnb.d-nb.de> abrufbar.

ISSN 1868-9892

ISBN 978-3-95547-059-3

DOI 10.5073/jka.2018.459.000



Alle Beiträge im Julius-Kühn-Archiv sind unter einer

Creative Commons - Namensnennung - Weitergabe unter gleichen Bedingungen -

4.0 Lizenz veröffentlicht.

Printed in Germany by Arno Brynda GmbH, Berlin.