

## University of Groningen

### Family planning under social competition

Fokkema, Rienk

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*

Publisher's PDF, also known as Version of record

*Publication date:*

2017

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Fokkema, R. (2017). *Family planning under social competition*. [Thesis fully internal (DIV), University of Groningen]. Rijksuniversiteit Groningen.

**Copyright**

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

**Take-down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

## Family planning under social competition

The research presented in this thesis was carried out at the Conservation Ecology Group, Groningen Institute for Evolutionary Life Sciences (GELIFES), University of Groningen, The Netherlands.

The study was funded by the Netherlands Organisation for Scientific Research (NWO grant to J.M. Tinbergen; grant number: 822.01.011)

The printing was supported by the University of Groningen (RUG)

*Lay-out* – Dick Visser

*Cover lay-out* – Rienk Fokkema, Joost Tinbergen

*Photographs* – Richard Ubels (box A, chapter 7, samenvatting), Joost Tinbergen (chapter 2 right photo, 3, 6),  
Margje de Jong (chapter 1, 4, 5, References), Rienk Fokkema (chapter 2 left photo).

The pictures for the acknowledgements are made by the various persons listed

*Printing* – Off Page

ISBN: 978-94-034-0027-3

ISBN: 978-94-034-0030-3 (electronic version)

©2017 R.W. Fokkema (rienkfokkema@gmail.com)



rijksuniversiteit  
 groningen

# Family planning under social competition

## Proefschrift

ter verkrijging van de graad van doctor aan de  
 Rijksuniversiteit Groningen  
 op gezag van de  
 rector magnificus prof. dr. E. Sterken  
 en volgens besluit van het College voor Promoties.

De openbare verdediging zal plaatsvinden op  
 vrijdag 29 september 2017 om 16:15 uur

door

**Rienk Wessel Fokkema**

geboren op 16 februari 1988  
 te Rheden

**Promotores**

Prof. dr. J.M. Tinbergen

Prof. dr. ir. C. Both

**Beoordelingscommissie**

Prof. dr. S. Verhulst

Prof. dr. N. Dingemanse

Prof. dr. A. Wilson

# Contents

CHAPTER 1	General introduction	7
<b>PART I: Parental competitive ability in winter</b>		
CHAPTER 2	Is parental competitive ability in winter negatively affected by previous springs' family size?	25
BOX A	The effect of family size on the ability of great tit ( <i>Parus major</i> ) parents to win competitive interactions over food in the winter period	47
<b>PART II: Parental competitive ability in spring</b>		
CHAPTER 3	Great tits trade off future competitive advantage for current reproduction	61
CHAPTER 4	Nest site preference in the presence and absence of competitors	79
CHAPTER 5	Fitness consequences of nest site depth for blue tits ( <i>Cyanistes caeruleus</i> ): an experiment	93
CHAPTER 6	Does family size affect parental competitive ability: a nest box removal experiment	111
CHAPTER 7	General discussion and synthesis	131
	BOX B: Evaluation of the selective pressure of competition on family size	143
	References	151
	Samenvatting	163
	Acknowledgements / Dankwoord	171
	List of Authors	178
	List of Publications	179

