



Universiteit
Leiden
The Netherlands

Bearing with noise: the effects of highway noise on behaviour and development in zebra finches

Liu, Q.

Citation

Liu, Q. (2021, June 2). *Bearing with noise: the effects of highway noise on behaviour and development in zebra finches*. Retrieved from <https://hdl.handle.net/1887/3180750>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/3180750>

Note: To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <https://hdl.handle.net/1887/3180750> holds various files of this Leiden University dissertation.

Author: Liu, Q.

Title: Bearing with noise: the effects of highway noise on behaviour and development in zebra finches

Issue Date: 2021-06-02

Bearing with noise:

The effects of highway noise on behaviour and development in zebra finches

Quanxiao Liu

刘权啸

Liu, Quanxiao

Bearing with noise:

The effects of highway noise on behaviour and development in zebra finches

PhD thesis, Leiden University, the Netherlands

An electronic version of this thesis can be downloaded from:
openaccess.leidenuniv.nl

Cover design and lay-out by Quanxiao Liu

Print: Ridderprint | www.ridderprint.nl

Bearing with noise:

The effects of highway noise on behaviour and development in zebra finches

Proefschrift

ter verkrijging van
de graad van doctor aan de Universiteit Leiden,
op gezag van rector magnificus prof.dr.ir. H. Bijl,
volgens besluit van het college voor promoties
te verdedigen op woensdag 2 Juni 2021

Klokke 15:00 uur

door

Quanxiao Liu
geboren te Dalian, China
in 1990

Promotores

Prof. Dr. Carel J. ten Cate

Dr. Hans W. Slabbekoorn

Copromotor

Dr. Katharina Riebel

Promotiecommissie

Prof. Dr. Gilles P. van Wezel (voorzitter)

Prof. Dr. Annemarie H. Meijer (secretaris)

Prof. Dr. Marc Naguib (Wageningen University & Research)

Dr. Sue Anne Zollinger (Manchester Metropolitan University)

Prof. Dr. Menno Schilthuizen (Naturalis Biodiversity Center)

Dit onderzoek werd gefinancierd door de Chinese Scholarship Council

Table of contents

Chapter 1 General introduction	1
Chapter 2 Zebra finches show spatial avoidance of near but not far distance traffic noise	11
Chapter 3 The effects of chronic traffic noise exposure during breeding on zebra finch parental behav- iour and breeding success	35
Chapter 4 The effects of rearing noise condition on spatial avoidance of traffic noise in juvenile and adult zebra finches	57
Chapter 5 The effects of rearing noise conditions on sing- ing effort and exploration tendency in adult zebra finches	76
Chapter 6 Thesis summary & General discussion	97
Nederlandse samenvatting	107
Chinese summary [中文概述]	112
Bibliography	115
Curriculum Vitae	140