## Contents

1. **General Introduction**
   1.1 Framework of the project ‘Biography of the New Land’  
   1.2 Aim and outline of this thesis  
   1.3 Synergy between archaeology and the earth sciences

2. **A niche construction approach on the central Netherlands covering the last 220,000 years**
   2.1 Introduction  
   2.2 Palaeogeographical context and habitation history
     - 2.2.1 Period 1: Middle to Late Saalian (~220–170 ka)  
     - 2.2.2 Period 2: Late Glacial (~14.7–11.7 ka)  
     - 2.2.3 Period 3: mid-Holocene (6000–5400 BP)  
     - 2.2.4 Period 4: Medieval and Modern Period (1200 BP up to AD 1942)  
   2.3 Hominins, landscape gradients and water in Flevoland during the last 220,000 years
     - 2.3.1 Early delta inhabitants  
     - 2.3.2 Floodplain inhabitants  
     - 2.3.3 Coastal area inhabitants  
     - 2.3.4 Peat island inhabitants  
   2.4 Discussion  
   2.5 Conclusions

3. **Gravel size matters: Early Middle Palaeolithic artefacts made from local Rhine and Meuse deposits in the central Netherlands**
   3.1 Introduction  
   3.2 Geographical and cultural setting
     - 3.2.1 Findspots of artefact-bearing deposits  
     - 3.2.2 Early Middle Palaeolithic assemblages of the central Netherlands  
   3.3 Methods
     - 3.3.1 Re-evaluation technological analyses flint assemblages  
     - 3.3.2 Mapping  
     - 3.3.3 Lithological analysis  
   3.4 Results and interpretation
     - 3.4.1 Comparison of the largest size and amount of abrasion of complete flakes from the selected flint assemblages  
     - 3.4.2 Lithological analysis  
   3.5 Discussion  
   3.6 Conclusion

4. **Predictive modelling of Younger Dryas archaeological remains in southern Flevoland (central Netherlands)**
   Abstract
6.4.1 Subdivision of the clay unit 85
6.4.2 Grain-size analysis 89
6.4.3 Paleogeographical development 91
6.5 Discussion 94
6.5.1 Coastal distance effects and embankments 94
6.5.2 Storm surges at Schokland 95
6.5.3 Event-stratigraphy 96
6.5.4 Storm surges at a regional scale 96
6.6 Conclusions 97

7 Optical dating of Late Holocene storm surges from Schokland (Noordoostpolder, The Netherlands) 99
   Abstract 99
7.1 Introduction 99
7.2 Material and methods 101
7.3 Results 104
7.3.1 Lithology 104
7.3.2 Palaeo-ecological indicators 104
7.3.3 Geochronology 106
7.4 Discussion and Conclusions 106
7.4.1 Subdivision clay unit 106
7.4.2 Geochronology unit 3 106
7.5 Summary 108

8 General discussion 109
8.1 Introduction 109
8.2 Palaeogeography and presence of archaeological remains in Flevoland 109
8.2.1 Palaeogeography and presence of archaeological remains in the late Middle to Late Saalian (220–170 ka, early Middle Palaeolithic) 110
8.2.2 Palaeogeography and presence of archaeological remains in the Younger Dryas (12.9–11.7 ka, late Final Palaeolithic) 111
8.2.3 Palaeogeography and presence of archaeological remains in the mid-Holocene (6000–5400 BP, Early Neolithic) 116
8.2.4 Palaeogeography and presence of archaeological remains in the Late Holocene (1200 BP up to AD 1942, Medieval period and Modern history) 117
8.2.5 Synopsis palaeogeography and presence of archaeological remains in Flevoland on four time windows 118
8.3 Preservation of past landscapes and landscape exploitation potential 118
8.3.1 Preservation of landscapes and exploitation potential in the late Middle to Late Saalian (220–170 ka, early Middle Palaeolithic) 120
8.3.2 Preservation of landscapes and exploitation potential in the Younger Dryas (12.9–11.7 ka, late Final Palaeolithic) 121
8.3.3 Preservation of landscapes and exploitation potential in the mid-Holocene (6000–5400 BP, Early Neolithic) 122
8.3.4 Preservation of landscapes and exploitation potential in the Late Holocene (1200 BP up to AD 1942, Medieval period and Modern history) 123
8.3.5 Synopsis preservation of past landscapes and information on landscape exploitation on four time windows 124
8.4 Lithological characteristics of the investigated landscapes 124
8.4.1 Lithology in the late Middle to Late Saalian (220–170 ka, early Middle Palaeolithic) 124
8.4.2 Lithology in the Younger Dryas (12.9–11.7 ka, late Final Palaeolithic) 125
8.4.3 Lithology in the mid-Holocene (6000–5400 BP, Early Neolithic) 126
8.4.4 Lithology in the Late Holocene (1200 BP up to AD 1942, Medieval period and Modern history) 126
8.4.5 Synopsis lithological characteristics of the investigated landscapes on four time windows 127
8.5 Hominin Niche Construction approach 128
8.6 Intervening periods of investigation from the Early Glacial (115–75 ka, late Middle Palaeolithic) to the Late Holocene (2000–1600 BP, Iron Age and Roman Period) 128
8.6.1 Late Middle Palaeolithic and late Middle to early Late Palaeolithic 129
8.6.2 Final Palaeolithic 129
8.6.3 Late Final Palaeolithic and Early to Middle Mesolithic 129
8.6.4 Iron Age and Roman Period 130
8.7 Inceptive versus counteractive change in Flevoland: Comparing NCT mode of hominin – environment interaction over four time windows 130
8.8 Conclusion 131

References 133

Summary 161

Samenvatting 165

Acknowledgements 169