THE AMERICAN STEPPES

Beginning in the 1870s, migrant groups from Russia's steppes settled in the similar environment of the Great Plains. Many were Mennonites. They brought plants, in particular grain and fodder crops, trees, and shrubs, as well as weeds. Following their example, and drawing on the expertise of émigré Russian–Jewish scientists, the U.S. Department of Agriculture introduced more plants, agricultural sciences, especially soil science, and methods of planting trees to shelter the land from the wind. By the 1930s, many of the grain varieties in the Great Plains had been imported from the steppes. The fertile soil was classified using the Russian term "Chernozem." The U.S. Forest Service was planting shelterbelts using techniques pioneered in the steppes. And, tumbling across the plains was an invasive weed from the steppes: tumbleweed. Based on archival research in the United States, Russia, Ukraine, and Kazakhstan, this book explores the unexpected Russian roots of Great Plains agriculture.

DAVID MOON is Visiting Professor at Nazarbayev University in Nur-Sultan, Kazakhstan, and Anniversary Professor in History at the University of York, UK. He is the author of *The Plough that Broke the Steppes: Agriculture and Environment on Russia's Grasslands, 1700–1914* (Oxford: Oxford University Press, 2013).

Studies in Environment and History

Alan Mikhail *Nature and Empire in Ottoman Egypt: An Environmental History*
Richard W. Judd *The Untilled Garden: Natural History and the Spirit of Conservation in America, 1740–1840*
James L. A. Webb, Jr. *Humanity's Burden: A Global History of Malaria*
Myrna I. Santiago *The Ecology of Oil: Environment, Labor, and the Mexican Revolution, 1900–1938*
Frank Uekoetter *The Green and the Brown: A History of Conservation in Nazi Germany*
Matthew D. Evenden *Fish versus Power: An Environmental History of the Fraser River*
Alfred W. Crosby *Ecological Imperialism: The Biological Expansion of Europe, 900–1900, Second Edition*
Nancy J. Jacobs *Environment, Power, and Injustice: A South African History*
Edmund Russell *War and Nature: Fighting Humans and Insects with Chemicals from World War I to Silent Spring*
Adam Rome *The Bulldozer in the Countryside: Suburban Sprawl and the Rise of American Environmentalism*
Judith Shapiro *Mao's War against Nature: Politics and the Environment in Revolutionary China*
Andrew Isenberg *The Destruction of the Bison: An Environmental History*
Thomas Dunlap *Nature and the English Diaspora*
Robert B. Marks *Tigers, Rice, Silk, and Silt: Environment and Economy in Late Imperial South China*
Mark Elvin and Tsui'jung Liu *Sediments of Time: Environment and Society in Chinese History*
Richard H. Grove *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600–1860*
Thorkild Kjærgaard *The Danish Revolution, 1500–1800: An Ecohistorical Interpretation*
Donald Worster *Nature's Economy: A History of Ecological Ideas, Second Edition*
Elinor G. K. Melville *A Plague of Sheep: Environmental Consequences of the Conquest of Mexico*
J. R. McNeill *The Mountains of the Mediterranean World: An Environmental History*
Theodore Steinberg *Nature Incorporated: Industrialization and the Waters of New England*
Timothy Silver *A New Face on the Countryside: Indians, Colonists, and Slaves in South Atlantic Forests, 1500–1800*
Michael Williams *Americans and their Forests: A Historical Geography*
Donald Worster *The Ends of the Earth: Perspectives on Modern Environmental History*
Robert Harms *Games against Nature: An Eco-Cultural History of the Nunu of Equatorial Africa*
Warren Dean *Brazil and the Struggle for Rubber: A Study in Environmental History*
Samuel P. Hays *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955–1985*
Arthur F. McEvoy *The Fisherman's Problem: Ecology and Law in the California Fisheries, 1850–1980*
Kenneth F. Kiple *The Caribbean Slave: A Biological History*

THE AMERICAN STEPPES

The Unexpected Russian Roots of Great Plains Agriculture, 1870s–1930s

DAVID MOON
University of York, UK
Nazarbayev University, Kazakhstan

CAMBRIDGE
UNIVERSITY PRESS

CAMBRIDGE
UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom

One Liberty Plaza, 20th Floor, New York, NY 10006, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

314-321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi - 110025, India

103 Penang Road, #05-06/07, Visioncrest Commercial, Singapore 238467

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning and research at the highest international levels of excellence.

www.cambridge.org
Information on this title: www.cambridge.org/9781107503205
DOI: 10.1017/9781316217320

First published 2020
First paperback edition 2022

A catalogue record for this publication is available from the British Library

ISBN 978-1-107-10360-3 Hardback
ISBN 978-1-107-50320-5 Paperback

Dedicated by Permission to the Leverhulme Trust for its generous support for original and distinctive research.

A traveler on the plains of Kansas, if suddenly transported while asleep to southern Russia . . . would discover very little difference in his surroundings except as to the people and the character of the farm improvements and live stock. . . Even these last would be of the same kind if he were transported from certain localities in Kansas where Russian immigrants [Mennonites] now live.

Mark Alfred Carleton, "Hard Wheats Winning Their Way," *Yearbook of the United States Department of Agriculture 1914* (Washington, DC: USDA, 1915), pp. 398–9

Contents

Figures, Maps, and Tables

Figure

Maps

Table

Preface

In the early spring of 2007, I was driving west from Lincoln, Nebraska, in the Great Plains, to visit some shelterbelts of trees planted in the "dirty thirties" to protect the land from the drying and erosive force of the wind. As I approached the 98th meridian, the landscape opened up, the plains got flatter, there were fewer trees (outside shelterbelts and river valleys), fewer and smaller human settlements, larger fields. And the sky got bigger and overwhelmed me. Interstate-80 stretched out in an almost straight line that extended towards a pinprick on a distant horizon where I could scarcely distinguish between the vast sky and the flat land beneath it. It took me back to how I'd felt four years earlier when I had explored the steppes of southeastern Russia. At first, I had also felt dwarfed by the boundless flat landscapes with few trees dominated by enormous skies. Over the years and several trips to both grasslands, I have gradually got accustomed to large, flat landscapes, and to appreciate nuances and diversity within them as well as similarities between them.

I went to the Great Plains in 2007 in part to see if the landscape resembled the steppes. It certainly did, except where human artifacts, such as I-80, 18-wheelers and pick-up trucks, strip malls and fast-food restaurants, distinctive fencing, buildings, and hi-tech agricultural machinery gave away the location. I was also exploring connections that linked the Great Plains of North America with the steppes of Eurasia. These were transfers and influences that did not, as many inhabitants of the western world might expect, travel from a highly advanced United States to Russian and Soviet states that were trying to learn from scientific and economic achievements across the Atlantic (of which there were examples). But, the transfers and influences I was interested in went the other way. Perhaps counterintuitively, I was looking for what Americans in the Great Plains had learned from Russians, Ukrainians, Kazakhstanis, and Germanic peoples in the steppes.

One of these influences was the forestry science and techniques behind the shelterbelts. While there was American experience of planting windbreaks in the Great Plains, it was Russian and Soviet studies that played a decisive role in the decision to launch the American Shelterbelt Project in 1934. Another influence was the science of conceptualizing, studying, and classifying soils. Beneath my feet in Nebraska was very fertile, deep, black soil that had formed over millennia in a flat grassland and a semi-arid climate. This was the innovative theory of soil formation devised by pioneering Russian soil scientists led by Vasilii Dokuchaev during field work in the steppes in the 1870s. It was later adapted for American soils by the U.S. Soil Survey under Curtis Marbut. I came across another influence from the steppes when I visited neighboring Kansas. In Marion County, I met members of a community of Mennonites, whose forebears had moved there from the south of today's Ukraine in the 1870s. My hosts proudly related how the migrants had brought with them seeds of a hard, red, winter wheat that thrived in the central plains.

I have given talks to audiences, including historians, geographers, scientists, and the general public, in the United States, Canada, Russia, and Kazakhstan. I have shown them photographs of the two grasslands and asked them to identify where they were taken.[1] The results have been interesting. Most people in all these countries have struggled to distinguish between images of the two regions or have guessed wrongly. For example, when I showed a photograph I had taken in the Flint Hills of central Kansas to an audience about 50 miles away, some were sure it was the Molotschna River valley in Ukraine, which some had visited. My audience in Fargo, North Dakota, convinced themselves that a photograph of a large expanse of grassland in their home state was the Russian steppes. However, when I showed the same picture to geographers at Moscow State University, one explained how it could not be the Russian steppes, since there was no such large area of unplowed grassland left. A botany student at Karaganda State University in Kazakhstan identified the location of one of my photographs from the species of steppe grasses. These informed, correct answers were exceptional (a few Americans also correctly identified my photographs). While researching this book, I came across many examples of people familiar with either the American or Eurasian grasslands commenting on the parallels when visiting the other or expressing uncertainty over where they were. More important for the argument of

[1] Readers wishing to replicate my experiment can search online for images of the "steppes" and the "Great Plains."

this book is the use made of the parallels by people on both continents who realized they could share and benefit from experience and expertise appropriate to such similar environments.

During several visits to the Great Plains, I became aware of other connections with the steppes. Descendants of migrants from the steppes, mostly Mennonites and other Germanic peoples, have maintained a keen interest in their history, running museums, libraries, and a historical society. As well as wheat and other crops the migrants also brought their cuisine. On my visit to the shelterbelts in Nebraska, my guide suggested we have a local delicacy for lunch: runzas. I laughed when I saw them as I was familiar with these bread rolls with savory fillings from Russia and Ukraine as *pirogi*. It transpired that the Germanic inhabitants of the steppes had adopted them from their Slav neighbors and then taken them across the Atlantic. Later on my drive across the plains in the spring of 2007, I came across another influence from "Russia": the Minuteman Missile National Historic Site, at Philip, South Dakota. The site commemorates the arsenal of intercontinental ballistic missiles armed with nuclear warheads that were deployed, "hidden in plain sight," beneath the Great Plains as part of the United States' nuclear deterrent against the perceived threat from the Soviet Union.[2]

[2] "Hidden in Plain Sight," available online at www.nps.gov/mimi/index.htm, accessed July 23, 2018.

Acknowledgements

A historian from the mild, humid, and green North East of England who trained a specialist on Russia could not have attempted to write a transnational environmental history of the semi-arid Great Plains of the United States without a lot of help. The length of these acknowledgements is testament to the generosity of many organizations and people, without whom there would be no book.

I would like to thank several institutions for fellowships and grants. The Leverhulme Trust has been exceptionally generous (hence the dedication). The Trust awarded me a Major Research Fellowship for 2015–17, during which I completed the research and wrote the first draft. A grant for a Leverhulme International Network on Russian environmental history from 2013 to 2016 funded some of the research in Russia. Back in 2003, I held a Leverhulme Study Abroad Fellowship in Rostov-on-Don, in the steppe region of Russia, where I carried out research and field work for my previous book on the steppes. I held a fellowship at the Institute for Advanced Study in Princeton in 2008–9, when I conducted some of the research and tried out some of the ideas for this book. The pilot project was supported by a short-term grant from the Kennan Institute in Washington, DC, in the spring of 2007. I am grateful also to the British Academy for three Small Research Grants, to Santander Universities for an International Connections Gold Award, and to the Rachel Carson Center in Munich for a short-term fellowship in July 2017. I would also like to thank Nazarbayev University in Nur-Sultan (Astana), Kazakhstan, for appointing me to a visiting professorship in 2018–20, which enabled me to visit Kazakhstani archives and complete this book in the heart of the Eurasian steppe. Thanks are due also, for a two-year appointment at the start of my career, to the History Department of the University of Texas at Austin, where I encountered the southern end of the Great Plains and started to think about a Russian-American research project.

Just as important has been the assistance of archivists and librarians. Too many have provided invaluable help for me to thank them individually.

I would like to express my gratitude to the staffs of the following archives, listed in alphabetical order. In the United States: The Bancroft Library, University of California, Berkeley; The Duane G. Meyer Library Special Collections and Archives, Missouri State University, Springfield; Georgetown University Library Special Collections Division, Washington, DC; The Kansas Historical Society State Archives, Topeka; The Library of Congress Manuscript Division, Washington, DC; The Mennonite Library and Archives, Bethel College, North Newton, Kansas; The Minnesota Historical Society, St. Paul; The National Agricultural Library Special Collections, Beltsville, Maryland; The National Archives at College Park, Maryland; The National Archives at Kansas City, Missouri; The Nebraska State Historical Society State Archives and Manuscript Division, Lincoln; North Dakota State University Archives, Fargo; The State Historical Society of Missouri Manuscript Collection, Columbia; South Dakota State Agricultural Heritage Museum, Brookings; South Dakota State University Archives and Special Collections, Hilton M. Briggs Library, Brookings; The University of Minnesota Archives, Minneapolis; Wichita State University Libraries Special Collections and University Archives, Wichita, Kansas. In Kazakhstan: the Central State Archive of the Republic of Kazakhstan and the Central State Archive of Scientific and Technical Documentation of the Republic of Kazakhstan, both in Almaty. In the Russian Federation: the Archive of the Russian Academy of Sciences in Moscow and the branch of the archive in St. Petersburg; the State Archives of Rostov and Samara regions; and the Russian State Historical Archive and the Central State Archive of Scientific and Technical Documentation, both in St. Petersburg. And in Ukraine: the State Archive of Odessa Region.

I am grateful to the librarians at, in the United States: The American Historical Society of Germans from Russia, Lincoln, Nebraska; The Ellis Library of the University of Missouri in Columbia; The Hilton M. Briggs Library of South Dakota State University; The Library of Congress; The Love and C. Y. Thompson libraries of the University of Nebraska-Lincoln (especially the librarian in the latter who located a misshelved copy of a rare publication on the history of the shelterbelt project by E. L. Perry, which proved extremely useful); North Dakota State University Library, including the Germans from Russia Heritage Collection, in Fargo; the University of Minnesota Library, Minneapolis; in Canada: the University Library of the University of Saskatchewan, Saskatoon; in the Russian Federation: the Library of the Academy of Sciences and the Russian National Library, both in St. Petersburg; the Russian State Library (formerly the Lenin Library), Moscow; and in Finland: The Slavonic Library of the National Library of Finland in Helsinki.

I visited many museums, state historical societies, state parks, preserves, national grasslands, tree nurseries, and research stations, too numerous to list in full, all of which deepened my understanding of the region, its environment, and history. I am particularly grateful to: Annette LeZotte of the Kauffman Museum, North Newton, Kansas; Gwen McCausland of the South Dakota Agricultural Heritage Museum, Brookings; Karen Penner of the Bernhard Warkentin House Museum in Newton, Kansas; Darlene Schroeder of the Mennonite Heritage Museum, Goessel, Kansas; and to the staff and volunteers at the Cimarron Heritage Center, Boise City, Oklahoma; and the Panhandle–Plains Historical Museum, Canyon, Texas. Thanks are due also to my guides at the Konza Prairie Biological Station, near Manhattan, Kansas; the Tallgrass Prairie National Preserve near Strong City, Kansas; and the Charles E. Bessey Nursery in the Nebraska Sandhills. North of the 49th parallel, I am grateful to my guides at the Mennonite Heritage Village in Steinbach, Manitoba, the Seager Wheeler Experimental Farm National Historic Site, Rosthern, Saskatchewan; the Saskatoon Forestry Farm (previously the Dominion, later Sutherland, Forest Nursery Station); and the Genebank of the Federal Plant Gene Resources of Canada on the campus of the University of Saskatchewan. I am grateful also to many farmers with whom I had conversations in Kansas, Nebraska, and Manitoba for sharing their knowledge and experience with a curious visitor from England.

Since this book builds on my previous monograph on the steppes of Russia and Ukraine, I would like to repeat my thanks to the people and institutions I acknowledged there, many of whom have continued to offer assistance. I would like to acknowledge the visa support provided by the European University and Higher School of Economics in St. Petersburg, and the advice of scholars in that city, in particular Alexandra Bekasova, Anastasia Fedotova, Julia Lajus, Marina Loskutova, and Alexander Semyonov, and in Moscow, Nikolai Dronin and his colleagues in the Geography Faculty at Moscow State University.

My thanks to all who invited, and in some cases funded, me to deliver papers, talks, and lectures and who came to hear me speak, ask questions, make comments, improve my knowledge, refine my argument (and join in trying to guess the location of my photographs). In the Great Plains and prairies, from south to north, at: The University of Texas History of Science Colloquium, Austin; The Kauffman Museum, Bethel College, North Newton, Kansas; The Center for Russian, East European and Eurasian Studies, University of Kansas, Lawrence; The Center for Great Plains Studies, University of Nebraska-Lincoln; Southwest Minnesota

State University, Marshall; North Dakota State University, Fargo; The University of Winnipeg, Manitoba, Canada; and the Doukhobor Prayer Home in Blaine Lake, Saskatchewan, Canada, during a symposium organized by the University of Saskatchewan. Elsewhere in North America, I spoke to the Institute for Advance Study, Princeton; the Institute of Slavic, East European, and Eurasian Studies at the University of California, Berkeley; and Pomona College in Claremont, California. In Russia, I gave talks at the School of History of the Higher School of Economics, St. Petersburg, and the Faculty of Geography, Moscow State University. In Kazakhstan, I presented my work at: Nazarbayev University and Eurasian National University, both in Nur-Sultan (Astana); the Central Asian Studies Center, KIMEP University, The Institute of History and Ethnology of the Academy of Sciences of the Republic of Kazakhstan, and the Archive of the President of the Republic of Kazakhstan, all in Almaty; Karaganda State University; and Kazakh Humanitarian, Law, Innovation University in Semey. Elsewhere, I spoke at the École des hautes études en sciences sociales, Paris, France; and at the universities of Durham, Essex, Glasgow, Hull, Leeds, Northumbria, Oxford, York, and University College London in the UK.

I have learned a great deal at conferences. I presented papers at the following: The European Association for Environmental History (UK Branch), St. Antony's College, Oxford, 2009; the 79th Anglo-American Conference, "Environments," at the Institute for Historical Research, London, 2010; the British Agricultural History Society, Winter Conference, London, 2012; the conferences of the European Society for Environmental History in Munich in 2013 and Versailles in 2015; the Annual Conference of the American Society for Environmental History, San Francisco, 2014; and the Annual Convention of the Association for Slavic, East European, and Eurasian Studies, in Philadelphia, in 2015; the British Association for Slavonic and East European Studies, Cambridge, 2016; a Global History Conference on "Mennonites, Land and the Environment," at the University of Winnipeg, Canada in 2016; and the Canadian History and Environment Summer Symposium at the University of Saskatchewan, Saskatoon, Canada, in 2018. Regrettably limitations of funding and time prevented me from attending further specialist conferences in North America from which I would have greatly benefitted.

My guide when I visited the shelterbelts in Nebraska was Bruce Wight, then of the National Agroforestry Center in Lincoln, Nebraska. I am grateful to Steven Anderson of the Forest History Society for putting us in touch. Many American and Canadian scholars have been generous with

advice and assistance when I have been in North America, including: Tony Amato of Southwest Minnesota State University; Charles Braithwaite and his colleagues at the Center for Great Plains Studies of the University of Nebraska-Lincoln; Douglas Helms, formerly historian at the United States Department of Agriculture; Tom Isern and Suzzanne Kelley in Fargo, North Dakota, who introduced me to many people, including Michael Miller; Kevin D. Kephart, Vice President, South Dakota State University, who shared his knowledge of Niels Hansen; Bonnie Lynn Sherow and James Sherow, who extended hospitality and advice in Manhattan, Kansas, when I was embarking on this project; Don and Beverly Worster, who hosted me near Lawrence, Kansas. When I ventured north to Canada, Royden Loewen and his colleagues at the University of Winnipeg and participants at their conference were very helpful to an "accidental Mennonite historian," and Ashleigh Androsoff, Jim Clifford, Geoff Cunfer, Laura Larsen, Cheryl Troupe, and Andrew Watson were generous hosts during their field trip and symposium at the University Saskatchewan. My guides in Korgalzhyn in the near identical environment of northern Kazakhstan were Timur Iskakov and Ruslan Urazaliyev. Nikolay Tsyrempilov, Aidyn Zhuniskhanov, and Ulan Zhangaliev invited me to join their expedition to see the steppes and semi-desert of Eastern Kazakhstan Region. I have benefitted from advice on Mennonite historiography from James Urry, on soil science from Edward Landa, on American history from David Huyssen, and on many topics, as ever, from Denis Shaw and Jonathan Oldfield.

To include everyone who helped me would produce a very long list. I apologize to anyone I've omitted who feels they deserve thanks, and a sincere thank you to everyone I met and who made my times in the plains (as well as the east and west coasts, which I didn't always just fly over to get to the plains) as memorable as my visits to Russia, Ukraine, and Kazakhstan. I am conscious that if I thank too many people I will incur – as I did after I included a long list in my last book – reprimands from review editors of journals looking for reviewers who have not been implicated by the author.

Unusually for an environmental historian, I feel I should acknowledge several car rental companies, automotive manufacturers, and oil companies for enabling me to explore the Great Plains and prairies. I am not sure I was supposed to take the rental cars off road in state parks, preserves, national grasslands, and farms, but I did my best to clean up them afterwards. A word also for the Russian country and western group Kukuruza (Corn), whose music I discovered when researching this book

and seemed an appropriate accompaniment to some of my writing. Their bluegrass version of the Stenka Razin song is particularly memorable.

I am especially grateful to the editors of the Cambridge Studies in Environment and History series and Cambridge University Press for trusting a British historian of Russia to write a book about North America. Thanks are due also to anonymous readers of my book proposal and manuscript, and the production team at the Press. While I have benefitted more than I can say from the support, help, and advice of the many people and institutions I have thanked here, responsibility for its contents, especially any errors of fact or interpretation, lies solely with the author.

Notes on the Text

Writing transnational history entails addressing issues of naming, language, translation, transliteration from other alphabets, formats for archival citations, and differing conventions for some of the above among the countries under investigation. Conscious that readers will include specialists on both North America and on the territory of the former Soviet Union and Russian Empire, but with less expertise on the other, I have endeavored to explain in a series of notes how I have dealt with these issues to make the text as accurate, consistent, and clear as possible.

Place Names

For clarity I have used names for places in the Russian Empire and Soviet Union (USSR), and the independent states that emerged from the latter's collapse in 1991, in the anglicized forms most familiar to readers in the Anglophone world. Thus, St. Petersburg is used in preference to Sankt-Peterburg, Kazakhstan instead of Qazaqstan, etc. Even this is problematic, since the spellings of place names in Ukraine are generally more familiar to international audiences from their Russian rather than Ukrainian spellings. Thus, and with no desire to cause offense, I have preferred Odessa to Odesa and Dnepr instead of Dnipro. I have sometimes used the term Turkestan, which was used in the nineteenth century and into the 1930s, for the southern part of present-day Kazakhstan and the rest of Russian/Soviet Central Asia. On the other hand, when writing about Mennonites, I have used their German names for their settlements in today's Ukraine. Thus, I use Molotschna, rather than the Russian and Ukrainian Molochna, for an important group of settlements that surrounded the present-day Ukrainian town of Molochans'k (Ukrainian spelling).

In the interests of accuracy, I have generally used the names and the administrative statuses of places at the time I am writing about them, but have sometimes given their present-day names for clarity. At the start of

our period the steppes lay in the south of the Russian Empire, which was ruled by the tsars from St. Petersburg. The Russian Empire and tsarist rule collapsed in March 1917. Following the Bolshevik revolution in October 1917 the Soviet state was founded. The Soviet Union (USSR), which was formally established in December 1922, covered much of the territory, including most of the steppe region, of the empire it succeeded. Thus, to March 1917 I refer to the Russian Empire; from October 1917 to December 1922, Soviet Russia; and from December 1922 until its collapse in December 1991, the Soviet Union. Aware of their serious limitations, and again with no intention of causing offense, for reasons of style I have sometimes resorted to the terms "Russia" and "Russian" as unsatisfactory short hands for the larger states centered on Russia and their inhabitants when referring to periods across the 1917 divide. The break up of the Soviet Union in 1991 left the steppe region divided between, from west to east: Moldova, Ukraine, the Russian Federation, and Kazakhstan.

A significant part of the steppe region is located in the territory of today's independent Ukraine. The term Ukraine did not have official status before 1917. From 1917 to 1922, Ukraine was at least nominally independent and, between 1922 and 1991, it was a constituent republic of the Soviet Union. A further complexity is added by the term "New Russia" (Novorossiia). In the period covered by this book, it referred to the region immediately north of the Black Sea and Sea of Azov, including the Crimean peninsula, in the south of today's Ukraine. The term New Russia was first used following the annexation of this region by the Russian Empire from the Ottoman Empire in the late eighteenth century. This part of the steppe region features prominently in this book as it was the home of the Mennonite communities, many of whose members migrated to the Great Plains from the 1870s.

It is not just countries that have changed their names. For example, the tsars' capital of St. Petersburg became Petrograd between 1914 and 1924, Leningrad from 1924 to 1991, when it reverted to St. Petersburg. (It was replaced as capital by Moscow in 1918.) I use the name of the city for the time I am writing about. Another city that has changed its name is present-day Gdańsk on the Baltic coast of modern Poland. In the period covered by this book, it was generally known by its German name of Danzig. It appears in this book, because the Mennonites (whose role in this book has created several issues for place names), who lived in New Russia had previously lived near Danzig before moving to the steppes in the late eighteenth and early nineteenth centuries. The city in which I completed the manuscript of this book underwent a name change while I was there:

in March 2019, Astana, the capital of Kazakhstan, was renamed Nur-Sultan (which is the city's fifth name since the foundation of Akmolinsk in 1832, it was called Tselinograd from 1961 and Aqmola/Akmola from 1992 to 1998).

Matters are less complicated for the Great Plains. I use this term for the semi-arid grassland region, where the natural vegetation is largely short and mixed grasses, extending from northwards from central Texas to North Dakota and west to the foothills of the Rocky Mountains. I generally use the term "prairies" for the grasslands immediately to the east and also, following standard usage, for the northern extension of the Great Plains in Canada. When quoting from or referring directly to contemporary sources, however, I have used the terms the authors used, but if necessary have explained what part of the region was intended. I have used the term "North America" for both the United States and Canada, but "American" as a shorthand for inhabitants of the United States.

The only real complexity when writing about place names in the Great Plains is the creation of territories that were later admitted as states to the Union. I have used their names and administrative statuses, and their geographical extent, at the time I am writing about them, with brief explanatory notes where necessary. For example, the Dakota Territory formed in 1861 comprised for a time lands that became the states of North and South Dakota, as well parts of Wyoming and Montana, all of which were granted statehood in 1889–90. I have done the same for counties that underwent changes of name or territory.

Names of Plants

An important part of this book is trying to identify species of plants in both the Great Plains and the steppes and those that made the journey from one to the other. The systems for classifying varieties of cultivated crops used by agricultural scientists and institutions such as the U.S. Department of Agriculture and its counterparts in Russia were evolving over the period covered by this book and differed between the two countries. There were also a variety of folk names for plants in both countries. In an effort to cut through possible confusions, and to explain how I reached my decisions on identification, where appropriate I have given the common names for plants in English and Russian (and on occasions also German) as well as the scientific binominal nomenclatures. Where these names, including scientific names, have changed, or do not necessarily correspond with each other, I have endeavored to give the

alternatives and explain these issues and changes. I have followed the American usage of "corn" for the grain known as "kukuruza" in Russian and maize in other varieties of English.

Transliteration from Cyrillic

In references to works in Russian and Ukrainian and in all places where I have transliterated words from the Cyrillic alphabet I have used the simplified Library of Congress of system. I have retained what look like quotation marks to transliterate two Cyrillic letters (the hard and soft signs). However, for much of the period covered by this book, other transliteration systems were in use, including some devised by individual writers. Different systems are and have been used for transliteration from Slavic languages into other European languages, in particular German, which will appear periodically in this book. For sake of consistency, when referring to people and terms, I have generally used the spellings used by the people and in the publications I am referring to. In an attempt to limit possible confusion, where appropriate, I have given also the transliterations in the Library of Congress system. For example, the Russian émigré American soil scientist spelled his name, when writing in English, as Constantine Nikiforoff. But, when citing his pre-emigration Russian publications and referring to him in the country of his birth, I have transliterated his name from Cyrillic in its Russian version as Konstantin Nikiforov. There are other such examples. Another potential source of confusion is the Russian terms for types of soils that were rendered into German by Russian scientist Konstantin Glinka and then, from the German transliterations, made their way into American publications of the 1910s to the 1930s. Thus, Chernozem (black earth) sometimes appears in its German transliteration from Cyrillic as "Tschernosem." Explanatory notes are provided where necessary.

Archival References

References to sources in Kazakhstani, Russian, and Ukrainian archives are given in the standard format for archives in the post-Soviet world: Name of Archive, fond (collection), opis' (inventory), delo (file), list (folio) in abbreviated form (see List of Abbreviations). Contrary to the standard system for archival citations in these countries, but in line with American systems, where appropriate I have included information on the document, e.g., the authors and recipients of letters and the dates. For example,

a letter from Soviet soil scientist Leonid Prasolov to American soil scientist Curtis Marbut in the Archive of the Russian Academy of Sciences is cited as: ARAN, f[ond]. 687, op[is'] 4, d[elo]77, l[ist].3, L. Prasolov to C. Marbut, April 1, 1922.

For consistency and for ease of locating the documents should anyone wish to follow up the references in this book, I have adapted the standard post-Soviet system for references to documents in American archives. For example, a letter from Mark Carleton to A. F. Woods at the USDA in Washington, DC, in the National Archives in College Park, Maryland, is given as: NARA CP, RG [Record Group] 54, Finding Aid A1, Entry 58, Division of Vegetable Pathology and Physiology: Correspondence of M. A. Carleton, 1891–1900, Folder, M. A. Carleton – 1900, Carleton to A. F. Woods, June 3, 1900.

A full list of archival collections cited is provided at the back of this book.

Dramatis Personae

Several key people recur in several chapters. I have introduced them in detail in the chapter in which they play their starring roles. Since some are referred to in supporting roles earlier in the book, I have provided brief biographies here, rather than distract attention from the wider argument when they first appear (and in preference to hiding this information in footnotes). The information here is based on the sources cited at the points in the book where these people are introduced properly.

Mark Alfred Carleton (1866–1925) American crop scientist and plant explorer. Educated at Kansas State Agricultural College, Manhattan. Employed by the United States Department of Agriculture (USDA), 1894–1918. Worked with Mennonites immigrants, including Bernhard Warkentin, in Kansas to test their wheat varieties. Visited the Russian Empire twice, in 1898–9 and 1900, to collect plants, in particular types of wheat, that could be useful in the Great Plains. Vigorously promoted the crop varieties he introduced to the United States.

Vasilii Dokuchaev (1846–1903) Russian soil scientist. Devised new theory of soil formation during field work in steppe region of the Russian Empire in 1870s and 1880s. This was the starting point for a new science of understanding soils that is widely considered the basis for modern soil science. Led special scientific expedition to steppe region in 1892–7 to research ways of making crop cultivation more reliable in wake of drought, crop failure, and famine of 1891–2.

Konstantin Glinka (1867–1927) Russian soil scientist. Former student and later colleague of Dokuchaev. Led soil science expeditions in the steppe region. In 1914 he published a book on Russian soil science in German that brought the innovative Russian work to wider international attention, including in the United States. Leader of Soviet delegation at the 1st International Congress of Soil Science in Washington, DC, in 1927.

Niels Hansen (1866–1950) Danish-born American botanist and plant explorer for the USDA and state of South Dakota. Worked for South