



Introduction to short-season gardening in Idaho

by Stephen L. Love, Kathy Noble, and Stuart Parkinson

CONTENTS

INTRODUCTION 1

DEFINING THE SHORT-SEASON, HIGH-ALTITUDE ZONE 1

IDAHO'S THREE SHORT-SEASON CLIMATES 2

NUANCES OF MICROCLIMATE 4

 Rural vs. Urban 4

 Slope and Aspect 4

 Local Weather Patterns 4



YOU ARE A SHORT-SEASON, HIGH-ALTITUDE GARDENER IF:

- You live in Idaho at an elevation above 4,500 feet, **OR**
- Your USDA hardiness zone is 4 or lower, **OR**
- You have a frost-free growing season of 110 days or less

INTRODUCTION

Many of us who garden in Idaho face the challenges brought on by lack of summer warmth, spring and fall frost, extreme winter cold, or desiccation from frequent wind. Growing beautiful and productive plants in the high desert or mountain regions of Idaho requires unique approaches and an attention to detail that are rarely discussed in popular garden guides.

This publication introduces the Short-Season/High-Altitude Gardening series specifically designed to provide effective, comprehensive ideas for gardening where Idaho's unique combination of extreme climate, weather, geology, and geography presents obstacles to successful gardening. Subsequent publications provide details on managing specific kinds of plants in the short-season garden.

DEFINING THE SHORT-SEASON, HIGH-ALTITUDE ZONE

The Short-Season/High-Altitude Gardening series is for gardeners living within Idaho's harshest climates, specifically those rated USDA hardiness zone 4 or colder, situated at an elevation above 4,500 feet, or with a frost-free period of fewer than 110 days. Although many locales throughout the state experience these conditions, they are most common in the upper Snake River Valley, the southeastern and southern highlands, the high deserts north of the Snake River, the central mountains, and the coldest valley and mountain locations in the northern panhandle. Peruse table 1 to determine if you live in or near a city that fits these criteria.

Hardiness zone designations in table 1 are modified from those in official USDA hardiness zone maps. These modified designations are based on actual daily record low temperatures for each city for the past 30 years (data provided by the Western Region Climate Center [www.wrcc.dri.edu/]) rather than on average annual minimum temperatures. As a result, some locales are rated one zone colder than in corresponding USDA maps.

A new hardiness zone map for Idaho incorporates the new designations. It provides much greater geographic detail than any previously available map and should better predict plant survival in many of Idaho's harsh climate locations.

Within Idaho's borders, the most severe climates are in the mountains and include the two highest-elevation cities in Idaho, Stanley (zone 3, elevation 6,260, and 15 frost-free days) and Island Park (zone 3, elevation 6,290, and 56 frost-free days), where traditional gardening is very difficult or impossible. At the warm extreme are regions that include Preston (zone 5, altitude 4,730 feet, and 123 frost-free days) and Bonners Ferry (zone 4, altitude 1,790 feet, and 128 frost-free days). If you live in one of these milder regions, you can routinely garden successfully by carefully selecting adapted plants and using effective short-season production techniques.

Table 1: Cities in Idaho that can be designated "short season" or "high altitude" based on their elevation, modified USDA hardiness zone, or number of frost-free days.

CITY BY REGION	ELEVATION	HARDINESS ZONE	FROST-FREE DAYS
North			
Bonners Ferry	1,790	4	128
Headquarters	3,138	5	96
Pierce	3,185	5	70
Potlatch	2,520	4	89
Priest River	2,380	4	91
Sandpoint	2,100	4	121
Central			
Cambridge	2,650	4	122
Cascade	4,865	4	68
Challis	5,175	4	114
Elk City	3,980	4	44
McCall	5,025	4 (3) ¹	63
New Meadows	3,868	3	57
Salmon	3,949	4	118
Southwest			
Garden Valley	3,143	5	104
Idaho City	3,965	4	64
Southcentral			
Fairfield	5,065	3	59
Ketchum	5,840	4	60
Malta	4,525	5	94
Richfield	4,306	4	111
Stanley	6,260	3 (2) ¹	15
Southeast			
Aberdeen	4,400	4	100
Arco	5,328	4	96
Ashton	5,100	4	89
Blackfoot	4,503	4	124
Driggs	6,097	3	68
Dubois	5,452	4	113
Idaho Falls	4,744	4	115
Island Park	6,290	3 (2) ¹	56
Montpelier	5,960	3	77
Preston	4,730	5	123
Rexburg	4,865	4	105
St. Anthony	4,960	4	88
Soda Springs	5,760	4	70

¹ Location closely approaches winter temperatures of a colder zone, in parentheses.



Wooded home landscape in the upper Clearwater Valley of northern Idaho. Regions of northern Idaho are usually the wettest in Idaho but otherwise share many of the features of broad, narrow valleys of central and southern Idaho.



Short-season, high-altitude locations in Idaho are typified by this home in the Teton Basin near Driggs, situated near high mountains on a flat to rolling landscape dominated by evergreens.

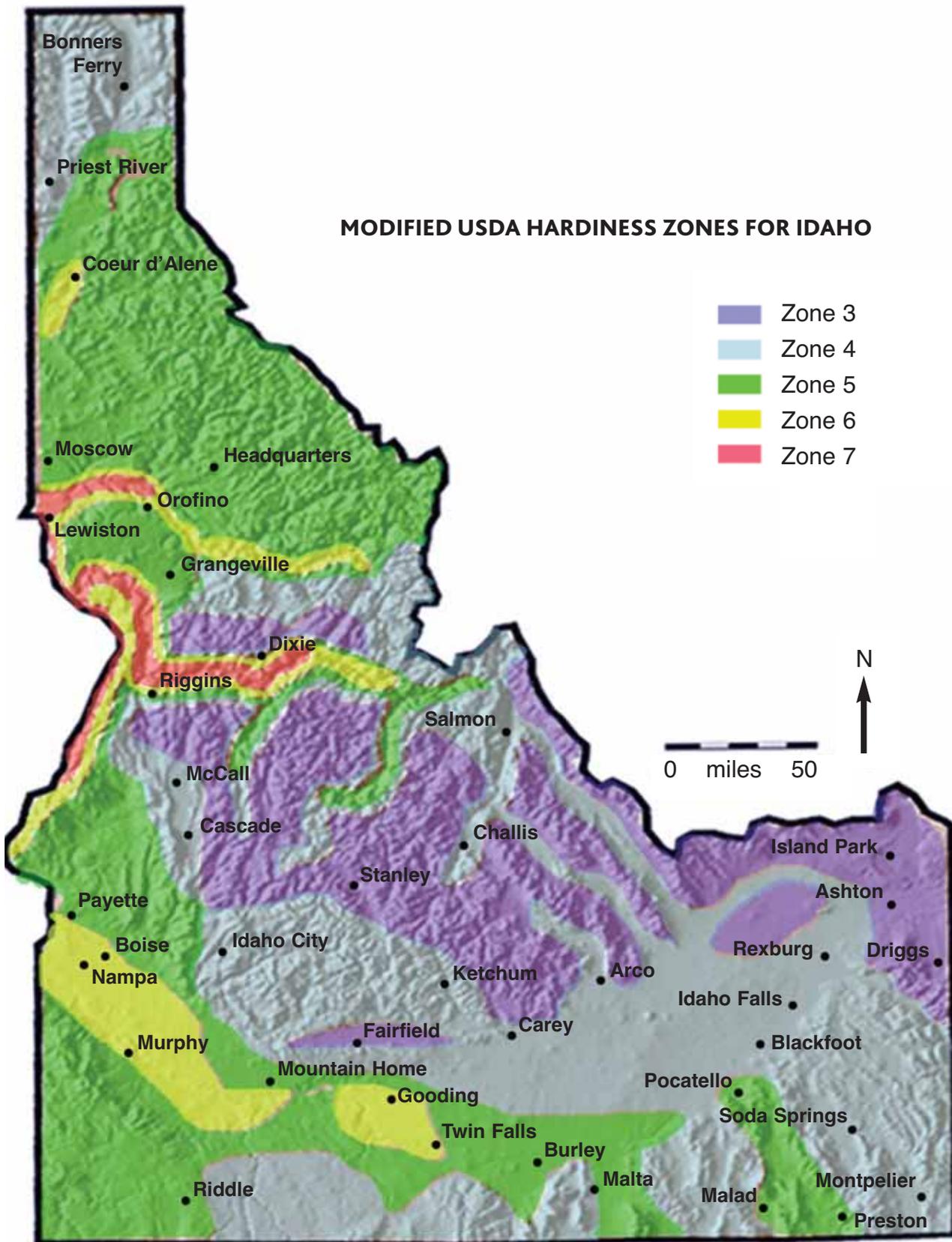
IDAHO'S THREE SHORT-SEASON CLIMATES

Short-season locations in Idaho can be grouped into one of three climate categories, each with its own limitations. The most populous is the high desert, with its combination of hot summer temperatures that support growth of some warm-season plants, spring and fall season-reducing frosts, and cold winter temperatures that damage or kill many trees, shrubs, and perennial plants.

A second category, typical of the northern Idaho panhandle, comprises the moister locations that often experience consistently cool summer temperatures that may prevent many plants from flowering or maturing in a timely manner. The third category, the high-elevation locations of the central and eastern mountains, are subject to the worst of all conditions: cool summers, frequent frosts, and bitter winter cold.

Each category has a unique combination of growing season length, winter cold, summer heat, wind, humidity, precipitation, sunlight intensity, and soil conditions. Although we often consider hardiness when selecting and managing plants, all of these factors can affect plant growth and survival.

MODIFIED USDA HARDINESS ZONES FOR IDAHO



Desert gardeners, for example, must consider drying and damaging winds, low humidity, and high soil pH. High-altitude gardeners must think about their short growing season, low humidity, and intense sunlight. Gardeners in the moister mountain valleys should understand the impact of consistently wet soils in winter and spring, cooler summer temperatures, and summer drought. Each of these factors will influence plant stress levels, and they may have more of an impact on plant survival than cold winter temperatures. Taking into account the complex interactions among these climate factors can complicate plant selection and landscape management, but will improve your chances for success.

NUANCES OF MICROCLIMATE

Idaho's complex geography and geology make generalized climate maps less informative than in more uniform environments. Extreme changes in elevation, aspect, landform, precipitation, and wind exposure occur within very short distances. The result is that your property's climate may be quite different than those of your neighbors. For example, along the 30-mile length of the Wood River Valley near Sun Valley, conditions vary from hardiness zones 2 to 4 and from places at risk of frost every night of the year to those that have a summer frost-free period of 130 days. No hardiness zone map is detailed enough to pick out these abrupt changes in climate conditions.

This variability of climate and growing conditions places a burden on Idaho gardeners to discover and understand the nuances of microclimate for our individual situations. Sometimes, it may be necessary to make your best educated guess as to your climate conditions and be adventurous by allowing plants to decide for themselves whether they are suited to your particular situation. A few things to consider when defining your individual conditions are discussed below.

Rural vs. urban—Your local climate conditions are affected by whether you live in a rural or urban area. Urban property is much warmer and more protected than surrounding farmland, desert, or forest. Unfortunately, most of the weather information used to compose hardiness ratings and climate descriptions comes from weather stations located within city boundaries. If you live in a rural location in a short-season/high-altitude region, your climate may be one zone colder than hardiness maps indicate. Rural gardeners definitely need a greater understanding of, and willingness to use, effective frost- and winter-protection practices.

Slope and aspect—The way property is situated can have a large impact on growing conditions. You may live on a slope that allows cold winter air to drain away, resulting in a milder climate than found along nearby valley floors. This might give you the ability to grow plants rated hardy at a full zone warmer.

A southern aspect to your property may provide the same advantage. If experience dictates that your yard will consistently incur deep, early snowfall, you may be successful growing many perennials and short-statured plants that would not survive without the added natural protection from an insulating layer of snow.

Local weather patterns—Finally, your gardening decisions can benefit from a simple understanding of local weather. For example, experience suggests that in the high deserts, hard frost follows a calm, clear, spring evening that is preceded by a windy day. Understanding such a local trend allows you time to break out the frost cloth and keep the flower beds alive.

Find more gardening resources and publications online at extension.uidaho.edu/homegard.asp



ABOUT THE AUTHORS

Stephen L. Love is a Community Horticulture Specialist in the Department of Plant, Soil, and Entomological Sciences, University of Idaho Aberdeen Research & Extension Center. **Kathy Noble** is a Landscape Architect with Katherine Noble and Associates, Hailey, Idaho. **Stuart Parkinson** is an Extension Educator with University of Idaho Extension, Franklin County.

PHOTO CREDITS

All photos courtesy of Stephen L. Love.

Issued in furtherance of cooperative extension work in agriculture and home economics, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Charlotte V. Eberlein, Director of University of Idaho Extension, University of Idaho, Moscow, Idaho 83844. The University of Idaho provides equal opportunity in education and employment on the basis of race, color, national origin, religion, sex, sexual orientation, age, disability, or status as a disabled veteran or Vietnam-era veteran, as required by state and federal laws.