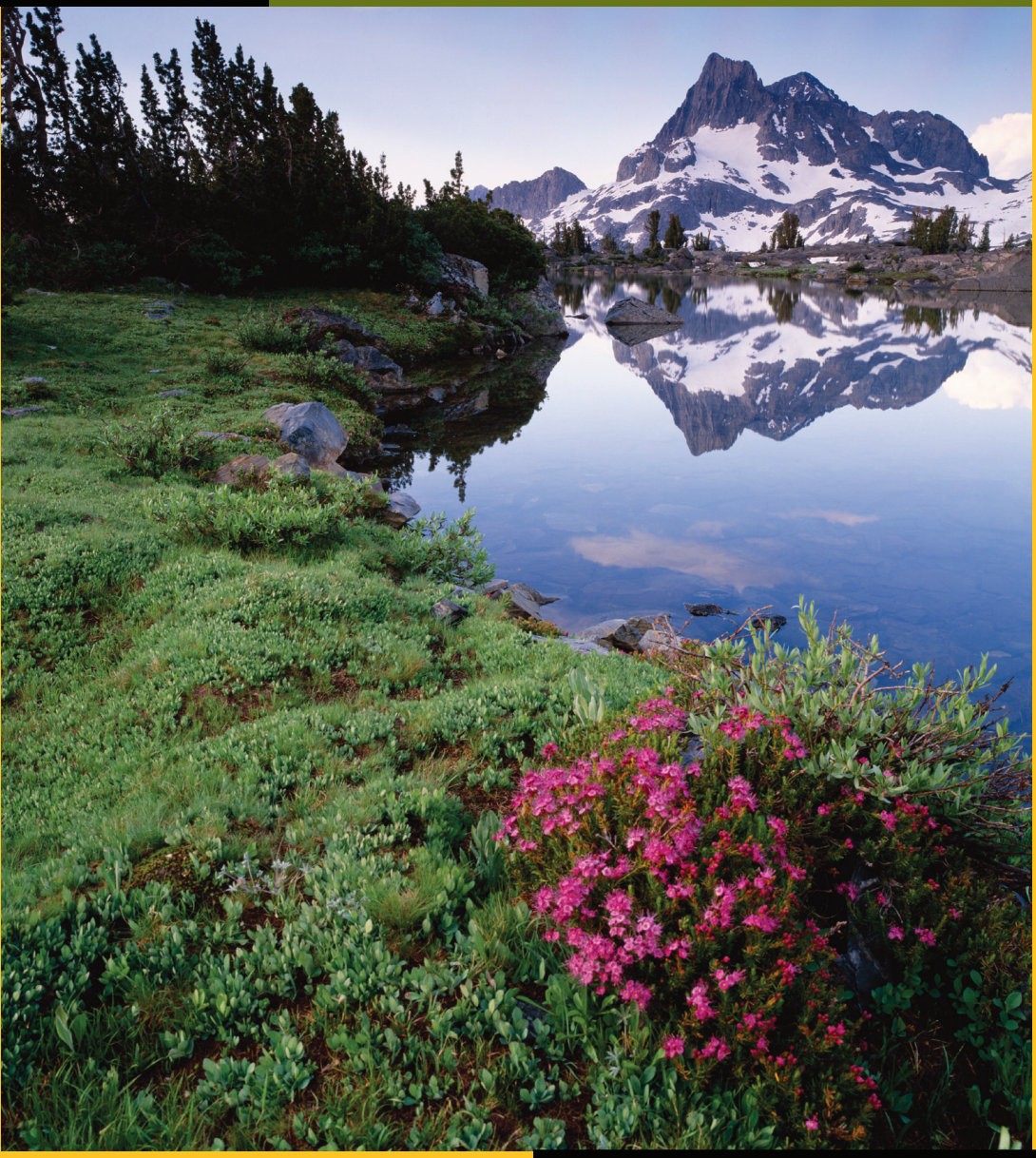
A FALCON GUIDE®

SIERRA NEVADA WILDFLOWERS

Including Yosemite, Sequoia, and Kings Canyon National Parks

A FIELD GUIDE



KAREN WIESE

SIERRA NEVADA
WILDFLOWERS

A Field Guide to Common Wildflowers and Shrubs of the Sierra Nevada, including Yosemite, Sequoia, and Kings Canyon National Parks

Second Edition

KAREN WIESE

FALCON GUIDES®

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THIS BOOK IS DEDICATED TO MY BELOVED CARL,
WHO SHARES THE WONDER, INSPIRATION, AND
LOVE OF OUR NATURAL WORLD.


SIERRA NEVADA
Sierra Nevada
Sierra Nevada Foothills
N
W
E
S
Mt. Lassen
Lassen Volcanic National Park
NORTHERN SIERRA NEVADA
Pacific Crest Trail
Reno
Oroville
Yuba River
Feather River
American River
Lake Tahoe
Carson R.
Carson City
Walker River
NEVADA
South Lake Tahoe
Sacramento R.
Cosumnes River
Sacramento
Mokelumne River
Stanislaus River
Bridgeport
Mono Lake
Yosemite National Park
Lee Vining
Tuolumne River
John Muir Trail
Mammoth Lakes
Devil's Postpile National Monument
Merced River
Merced
CENTRAL SIERRA NEVADA
John Muir Trail
Pacific Crest Trail
Bishop
CENTRAL VALLEY
San Joaquin River
Kings Canyon National Park
Kings River
Owens River
Fresno
SOUTHERN SIERRA NEVADA
Mt. Whitney
Lone Pine
Sequoia National Park
Giant Sequoia National Monument
Kaweah River
CALIFORNIA
Lake Isabella
Owens Peak
Kernville
Walker Pass
Kern River
PACIFIC OCEAN
Bakersfield
0
50
100
Miles

CONTENTS

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Contributions to and encouragement for the second edition of this book have come in many forms. I would like to express heartfelt appreciation for the support and guidance of Jessica Haberman, acquisitions editor for Globe Pequot Press. I would also like to thank the staff at Globe Pequot Press for their contributions in bringing this book to fruition. This project could not have happened without the love and support of my friends, who cared for our beloved cats, minded the farm when we were photographing, and offered encouragement throughout the entire process. Good friends—Jane Bicek, Debbie Carlisle, Tony Loftin, Sylvia Mehlhaff, and Christina Slowick—patiently accompanied me on photographic forays, and I am thankful for their company and their plant-locating abilities. My father, Robert Wiese, offered his support through his love and sense of humor, and spotted *Paeonia brownii* when I walked right by it. My Forest Service family was incredibly helpful in providing locations of some of the key species that I sought, and my gratitude extends to Chris Christofferson, Joanna Clines, Kalie Crews, Kay Edens, Jenny Haas, Jim Belsher-Howe, Linnea Hansen, Lawrence Janeway, Susan Marsico, Nolan Smith, Mary Sullivan, Jamie Tuitele-Lewis, Kathy Van Zuuk, Karen Walden, and Sue Weis. California Native Plant Society members Cyndi Brinkhurst, Julie Carville, Kathy LaShure, and Joan Stewart generously guided me to some prime wildflower locations. Thanks once again to Steve Schoenig, who confirmed identification of a *Mimulus*. I hiked miles of trail and met many encouraging people, but Nate Barnett was particularly helpful with his photographic assistance on the trail. The Internet was instrumental in helping access information readily, and Sandy Steinman's website, Natural History Wanderings helped me plan my photographic forays.

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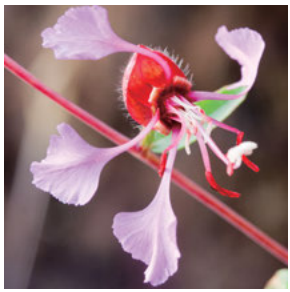
PREFACE



"I went out for a walk, and finally concluded to stay out till sundown, for going out, I found, was really going in."

— John Muir, 1913

Long before my interest in flowers was ignited, I felt a profound sense of wonder as I hiked every trail, climbed each peak, and swam in every lake that I came to in the Sierra Nevada. In a region of infinite grace and profound beauty, my adventures here have always been extraordinary. On one level the intent of this book is to satisfy a curiosity, to identify a plant. But on another level the goal of this book is to inspire a sense of wonder about the life force. Elephant heads, fairy lanterns, and lady slippers—they are all here, and when you find them, there is an inexplicable sense of meeting with divinity. In her 1907 manual *The Wild Flowers of California,* Mary Elizabeth Parsons describes this sense of wonder: "to the mind open to the great truths of the universe, it takes on a deeper significance. Such a mind sees in its often humble beginnings the genesis of things far-reaching and mighty. Two thousand years ago one grain of the showers of pollen wafted upon the wind and falling upon a minute undeveloped cone, quickened a seed there into life, and this dropping into the soil pushed up a tiny thread of green, which, after the quiet process of the ages, you now behold in the giant Sequoia which tosses its branches aloft, swept by the four winds of heaven."

The second edition of this book offered me a chance to refine the choice of species to encompass those that were most common, sometimes confusing, and incorporate the new name changes. Almost one hundred new species were added, resulting in 290 of the most common wildflowers, shrubs, and unique plants found in the Sierra Nevada. A book of this size cannot list each plant in the region. For example, more than fifty different lupines occur in the Sierra Nevada, making it impossible to include all members of the genus *Lupinus* in a book of this scope. Instead, several lupines were chosen that represent different colors, habitats, and plant communities with the hope that the reader will at least be able to identify the plant as a lupine and then use other resources to further identify the plant. The specific plants were chosen based on their distribution throughout the range, frequency of occurrence, and beauty.

My hope is that this book can serve to increase readers' knowledge, appreciation, and awareness of the natural world.

Little Pete Meadow, Kings Canyon National Park DANIEL PERROT

INTRODUCTION

The Sierra Nevada makes up one-fifth of California's total landmass, and it is California's largest mountain range, extending approximately 400 miles north to south and 50 to 80 miles west to east. Geologically, the Sierra Nevada extends from its northernmost point, south of Lassen Peak, the southernmost peak of the Cascade Range, to the Tehachapi Mountains at the Garlock Fault, bordering the western Mojave Desert

The floristic coverage of this book ranges from the southern Sierra Nevada near Walker Pass and Owens Peak, northward to include Mammoth Lakes; Kings Canyon, Sequoia, and Yosemite National Parks; Devil's Postpile National Monument; and the Lake Tahoe region. The majority of eight national forests in California, from Sequoia National Forest and Inyo National Forest in the south to Plumas National Forest in the north, as well as portions of Toiyabe National Forest and the Lake Tahoe Basin Management Unit, both extending into Nevada, are also included. Specifically, the area covered by this book has as its northern border the North Fork of the Feather River in Plumas County. The southern border is the Greenhorn Mountains and Walker Pass, east of Bakersfield in Kern County. The western border of the Sierra Nevada abuts the foothills in a corridor of oak-dominated woodlands that transition westward into the Great Central Valley. In the northern Sierra the eastern border encompasses the Sierra Valley and extends southward through the Carson Range in Nevada, east of Lake Tahoe, following US 395 southward along the spectacular escarpment on the east flank of the Sierra Nevada crest.

South of Yosemite National Park, no roads transverse the Sierra Nevada. Hiking trails ascend the steep eastern slopes, reaching the summit and descending more gently westward into vast, glaciated areas of granite, valleys, and thick forests on the west slopes of the range. It is the southern to

Lyell Fork of the Tuolumne River, Yosemite National Park DANIEL PERROT

central crest that rises most dramatically, with several lofty peaks rising over 14,000 feet, to the highest point in the conterminous United States, on Mount Whitney (14,496 feet).

In 1776 Father Pedro Font, a Franciscan missionary in the Spanish expedition of Juan Bautista de Anza, which explored this area, viewed the mountains from a peak in San Francisco, 180 miles away, and called it "*una gran sierra nevada*," translated as "a great snow-covered range." In his book *My First Summer in the Sierra*, John Muir wrote: "Probably more free sunshine falls on this majestic range than on any other in the world. How ineffably spiritually fine is the morning-glow on the mountain-tops and the alpenglow of evening. Well may the Sierra be named, not the Snowy Range, but the Range of Light."

Mount Muir and Mount Whitney from Trailcrest Pass, Inyo National Forest DANIEL PERROT

The Sierran flora exhibits exceptional floristic diversity because of its great range of elevation and north–south latitude, from approximately 35.5 to 40 degrees north, and its attendant climatic variability. Add to this its many rock and soil types, and very close and long geologic contact to other floristic provinces, including the Cascade Range to the north and Transverse Ranges to the south, and the Great Central Valley and Coast Ranges to the west and Great Basin and Mojave Desert to the east have greatly augmented this diversity. The Sierra Nevada contains more than one-half of California's total of 5,000 native species, with many additional named varieties and subspecies bringing the total to 6,500, of which approximately one-third are endemic, i.e., restricted only to California.

USING THIS GUIDE

The plant entries in this book are divided into six color groups based on the most predominant color of the inflorescence. Please note that many flowers have more than one color, and frequently a flower's color changes as it ages, so the reader is advised to refer to other color sections of the book. Within each color section the plants are arranged alphabetically according to plant family. Since the first edition of this book, the classification and names of many species have undergone genetic scrutiny. Molecular data has elucidated new plant relationships, creating the need to reorganize and rename many plant families and scientific names. The former name is included to facilitate the transition of learning new plant taxonomy. Each plant entry has a corresponding photograph. For the most part, images have been chosen that show identifying characteristics of the plant, including the flower, leaves, and habitat. Often, however, the photograph shows a close-up of the flower. In these cases the reader is advised to read the description section to gain a sense of scale. An inset photograph is sometimes included to provide a close-up, color variant, or characteristic fruit. Common names are not standardized. Often there are several common names for a given species, and sometimes a common name can refer to several, unrelated species. Frequently, they infer erroneous relationships to groups of plants to which they do not belong. For example, blue-eyed-grass is not a grass—it is more closely related to an iris. Many species do not even have common names. Nonetheless, they are useful to many people who have come to know and love plants by their common names. The common names used here are taken from the first and second editions of *The Jepson Manual: Higher Plants of California* (Hickman [ed.], 1993; Baldwin et al. [eds.], 2012), *A California Flora and Supplement* (Munz and Keck, 1973), and occasionally from other popular sources.

The scientific naming (nomenclature) and classification (taxonomy) of organisms requires that name changes are frequently needed to reflect our current understanding of their evolutionary relationships (phylogeny). The study of evolutionary relationships and classification has recently undergone revolutionary change, especially with rapid advances in molecular biology. Scientific names and classifications included here are based on the current second edition of *The Jepson Manual*. Synonyms and misapplied names used in the first edition are also included in the text and in appendix B.

The system we use today was created in the mid-eighteenth century by the Swedish naturalist Carolus Linnaeus. Scientific names are often derived from Latin words that describe

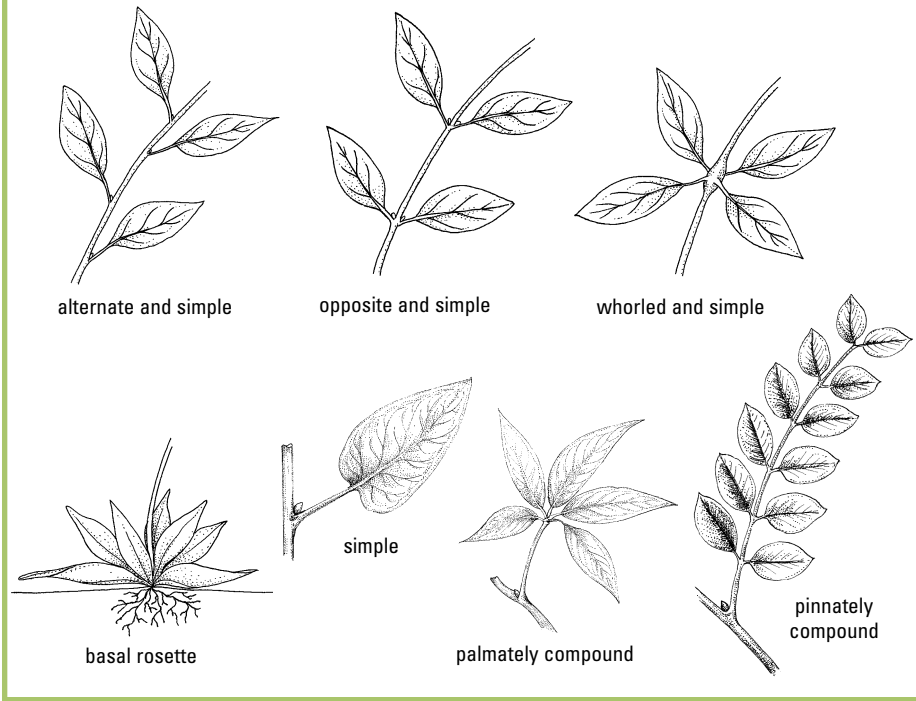


Figure 1. Leaf Arrangement

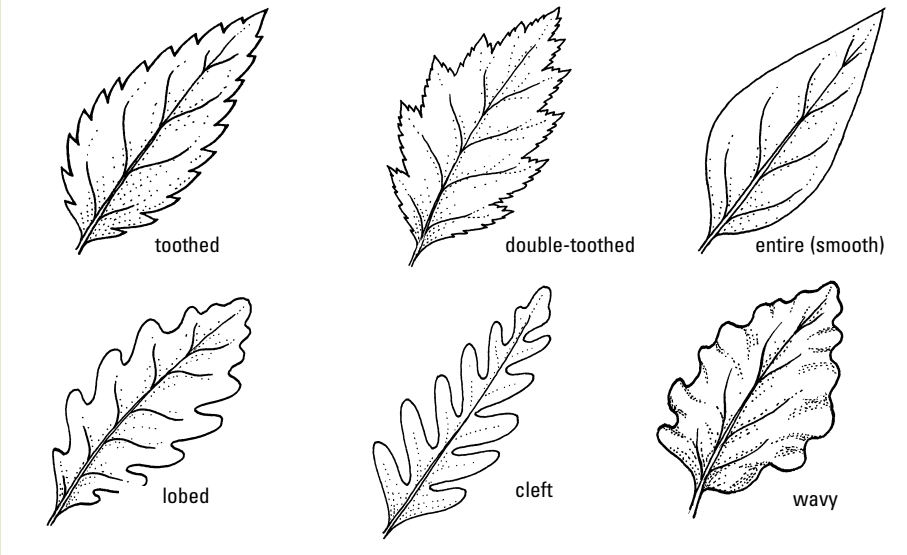


Figure 2. Leaf Margin

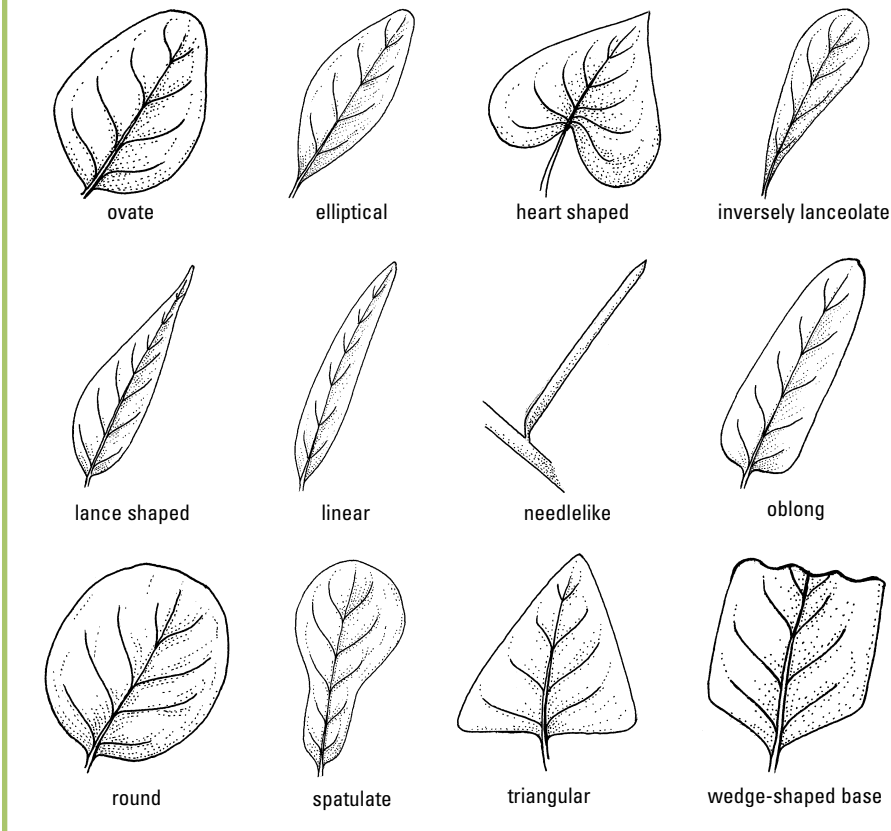
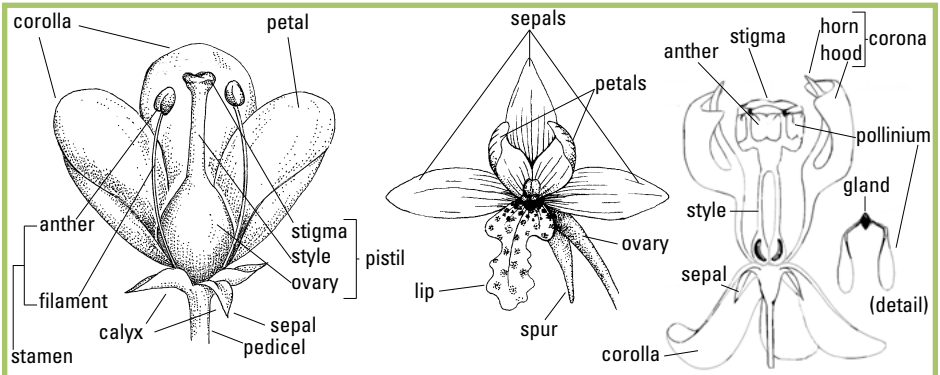


Figure 3. Leaf shapes



Typical flower in longitudinal view

Flower of the Orchid Family (Orchidaceae)

Milkweed Flower in cross section

Figure 4. Flower parts

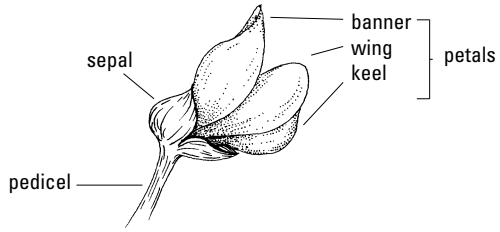


Figure 5. Flower of the Pea Family (Fabaceae)

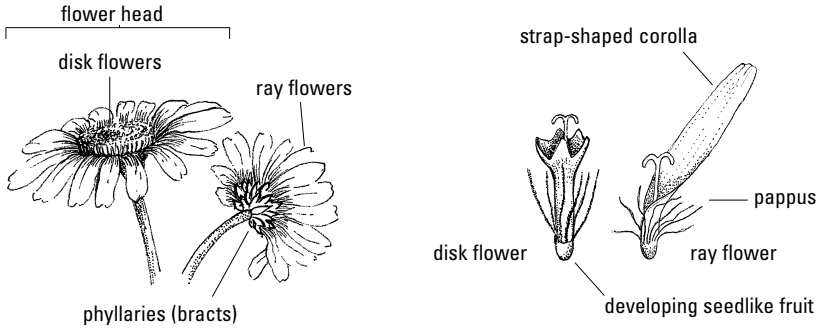


Figure 6. Flowers of the Aster Family (Asteraceae)

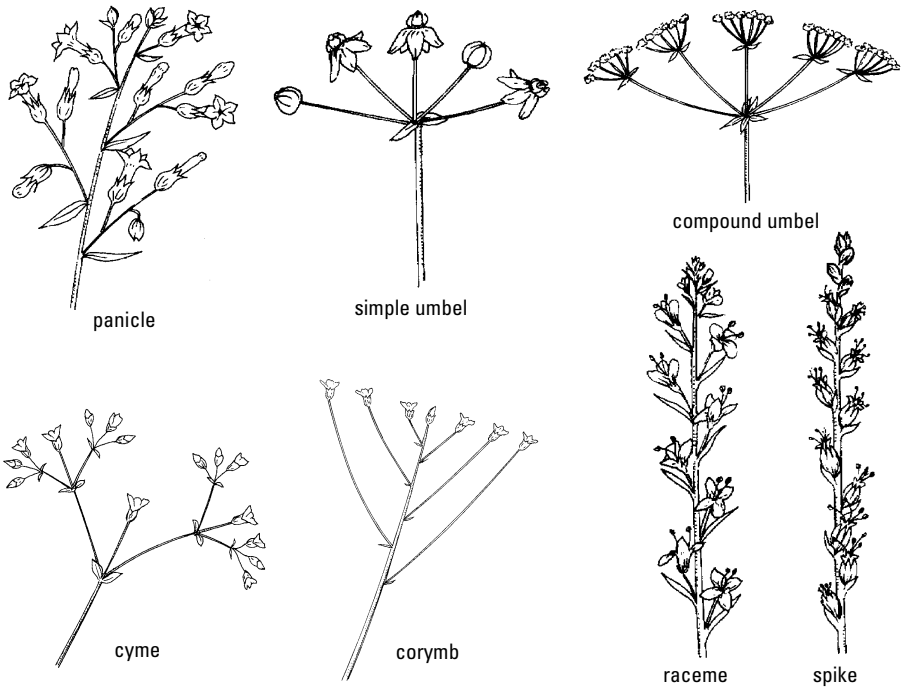


Figure 7. Flower Arrangement or Inflorescence

some feature of the plant, commemorate a person, or refer to a place. Latin is used because it was the classical written language for medicine and law during the eighteenth century, the time of Carolus Linnaeus. Plants are placed into broad groupings called families, based on genetic, reproductive, chemical, and morphological similarities, which reflect a shared evolutionary ancestry. An example of a family name is the pea family, the Fabaceae. Plants in this family include lupines, clovers, beans, and peas.

To identify each individual species, we employ a binomial system of nomenclature, which assigns a two-word name to a plant. The first name is the genus name, which groups closely related plants, often based on similarities in flower and fruit. The genus name is always capitalized. The specific epithet follows the genus name and is not capitalized. Together, the genus and specific epithet comprise a unique binomial name that identifies one, and only one, single species. An example of a genus in the pea family is *Cercis*, or redbud trees, a genus of ten species in the Northern Hemisphere. The specific epithet for our only species in California is *occidentalis*, which tells you that this is the western redbud. Occasionally, our concept of a single species encompasses considerable, and recognizable, variation, often correlated with geography, distribution, soils, climate, elevation, etc. In this case, trinomial names are applied. When the variation is rather pronounced, then the rank of subspecies applies. When the variation is less pronounced, and it becomes more difficult to distinguish the variation, then the lesser rank of variety is used.

Some of the wild plants that you observe will resemble plants that you already know. The Sierra Nevada pea may remind you of sweet peas in your garden, which is no surprise, for they are in the same family.

The **Description** section of each entry contains information about the plant's life form and appearance, leaves, inflorescence, and often the fruit. The description section specifies the life form of the plant, indicating whether the plant is an annual, biennial, or perennial. Annual plants complete their life cycle in one year. Biennial plants grow vegetatively for one year, then produce flowers and seed, and then die the second year. Perennial plants live more than two growing seasons, and are usually nonwoody above ground. Each plant is then described in terms of its physical appearance, i.e., whether the plant is an herb, subshrub, shrub, tree, or vine. Herbs are broad-leaved, nonwoody plants that die back to the soil surface at the end of the growing cycle, and can be annuals, perennials, or biennials. Subshrubs have woody lower stems, but their nonwoody upper stems and twigs die back seasonally. Shrubs are woody throughout and have a short maximum height, to distinguish them from trees. Sub-

shrubs, shrubs, and trees are perennial, but that term usually applies to plants that live more than two years and are generally nonwoody.

Leaves are described in terms of their arrangement on the stem, as well as their shape. Leaves can be arranged in pairs opposite each other, alternate and singly on a stem, whorled in a group of three or more on a stem, or arranged in a basal rosette. Leaves can also be simple or compound. A simple leaf has a single blade that may be lobed or cut, but not all the way to the midrib. A compound leaf has two or more separate blades called leaflets. Compound leaves may be arranged palmately or pinnately (figure 1). Leaf edges, called margins, can be variously smooth (entire), wavy, toothed (serrate), or lobed (figure 2).

The inflorescence is the entire aggregation of flowers and their associated structures, such as colorful bracts in a plant we call paintbrush. The inflorescence can be arranged in a spike, raceme, panicle, cyme, umbel, or corymb (figure 7). An individual flower might be solitary at the end of a flower stalk, or located in the leaf axil, and individual flowers might be shaped like a funnel, tube, bell, trumpet, sphere, saucer, or star. Members of the aster family (Asteraceae) are unique, for in this group what appears to be one flower is actually a group of many flowers, an entire inflorescence. The flower head is composed either of ray flowers, disk flowers, or both. On aster-family flowers with both flower types, such as daisies, the ray flowers resemble "petals," and the disk flowers form the "center" (figure 6).

Typically, a flower has its floral parts arranged in four concentric circles. The outermost whorl consists of the sepals, collectively called the calyx, which are usually green, but can be petal-like and colorful. Inside the ring of sepals are the petals, collectively called the corolla. The petals can be separate or fused together, partially, as in a monkeyflower, or entirely, as in a morning glory. Next, the stamens occur inside of the whorl of petals, and there can be from zero to "many" stamens (for example, the prickly poppy can have 250 stamens!). The stamens are the male reproductive structures, with each stamen consisting of a threadlike filament and the anthers, which produce the pollen. In the center of the flower, one finds one to many female reproductive organs, called pistils. Each pistil is generally subdivided into one or more stigmas, the pollen receptive area, one or more styles, and an enlarged ovary that contains one or more ovules. Pollen landing or placed on the receptive stigma germinates, growing as a tube through the style and into the ovary, fertilizing the ovule, which develops into a seed (figure 4).

The fruit is actually the ripened ovary and associated structures, including the seed. Some fruits are so unusual that they draw more attention than the flower. Sometimes, all you will see is the fruit, because the flower has already bloomed.

The flowers of orchids (Orchidaceae) are unique in that stamens and pistil are fused together into a complex structure called a column. The pollen is lumped into packets called pollinia (pollinium – singular). At the tip of the column is the anther cap, which covers and protects pollinia. There are three petals: the upper petals often, but not always, resemble the sepals. The third or lower petal is modified into a lip that is sometimes shaped like a pouch. This petal can incorporate a downward tube called a spur that can contain nectar, which is an attractant for insects that may pollinate. The lip also aids in pollination by functioning as a landing platform for insects or can be much larger and a different color and act as a visual attractant.

Milkweed flowers (genus *Asclepias*, dogbane family [Apocynaceae]) are unique in that the flowers have an extra floral whorl of nectar-producing structures called the corona. The sepals and petals are reflexed, exposing the corona. The corona consists of 5 erect, brightly colored appendages, each called a hood. Inside each hood is a horn. Together these comprise the nectar producing structures. In the center of the corona is the fused stigma and anthers. Surrounding the stigma, are anthers, each with a pollinium or pollen mass. Each pollinium is joined to another pollinium by thread-like translator arms that are joined at the gland. As an insect lands on the flower, the insect's leg snags the translator arm and pulls out the pair of pollinia, like a pair of saddlebags and transports the pollinia to another milkweed blossom. Only larger insects such as flies and wasps have the strength to pull away the pollinia.

Many members of the pea family (Fabaceae) deserve special mention because they have a characteristic flower shape. In this book this arrangement will be referred to as a pea-family flower. The upper petal, called the banner, is erect or upright, spreading, and is usually the largest of the petals. Below the banner are two side petals, called wings, often joined at their tip, and closely surrounding the two fused bottom petals, shaped like the hull of a boat, called the keel (figure 5).

The **Bloom Season** is based on information from several books, and the months given represent the entire time the species may be found blooming anywhere in the Sierra Nevada. The bloom season for a plant varies with elevation, latitude, and local weather patterns. Any given species will bloom earlier at lower elevations than the same species at higher elevations, and earlier in the southern Sierra Nevada than the northern Sierra Nevada. Thus, you will have to allow for some variation in the bloom date for each individual location. If you miss a flower one month, you might find it blooming later at a higher elevation, farther north, or in an area that stays moist later. Also, note that plant bloom

Barney Lake, John Muir Wilderness LAURIE PERROT

dates can vary by two to four weeks due to climatic variations. In years of heavy snows or unusually cold spring or summer weather, wildflowers, especially in the alpine zone, may not bloom at all that year!

In general, the first flowers of the year begin blooming in the foothill woodlands and chaparral of the southern Sierra Nevada in February and last for several months. The same species will begin to bloom in March and April in the northern Sierra Nevada foothill woodlands. April and May are the peak blooming months for plants in the foothill woodlands. May, June, and July are peak blooming months for the mixed coniferous forest, and the sagebrush scrub on the east side. July and early August bring the spectacular displays of flowers in the upper montane, mountain meadows, and subalpine forest. In the high Sierra, "spring" is just beginning in late July, and the alpine zone becomes covered with a spectacular display of colorful cushion plants. By September, most of the plants in the Sierra Nevada have bloomed, although some plants continue to bloom into October, especially in moist areas.

In this book the **Habitat/Range** section describes the habitat, the vegetation type that the individual plant lives in, where in the Sierra Nevada the plant is found, and the general elevation. The specific environmental setting in which a plant resides is termed its habitat. The four habitats covered in the scope of this book are: (1) open places, (2) shaded areas in woodlands and forests, (3) wetlands including meadows (wet and dry), stream banks, lake edges, and seeps, and (4) rocky places including gravelly areas. In the alpine zone, gravelly and rocky areas are called alpine fellfields, and the somewhat stable, sloping accumulation of large rocks is called talus. Each habitat occurs as a result of the interactions of climate (temperature, precipitation, and humidity), soil (texture, moisture level, and chemical composition), and geography (location, elevation, and topography). To simplify the process of plant identification, the definitions of these habitat types are very broad in this manual. For example, an entry may state that the preferred habitat for a particular plant is "wetlands." However, that plant may actually prefer drying meadows or moist stream banks, and not what we would generally think of as a wetland. Additionally, many plants can live in more than one type of habitat. When this is the case, the most usual habitat for the plant is given.

For clarity, the seven vegetation types represented in this book characterize the vegetation of the Sierra Nevada on a gross scale and are based on dominant vegetation, soil, climate, and elevation. The habitat types occur within each of these vegetation types. For example, one can find rocky places or wetlands in each of the seven vegetation types. The vegetation types occur in north–south elevational bands, along fluctuating elevations of the

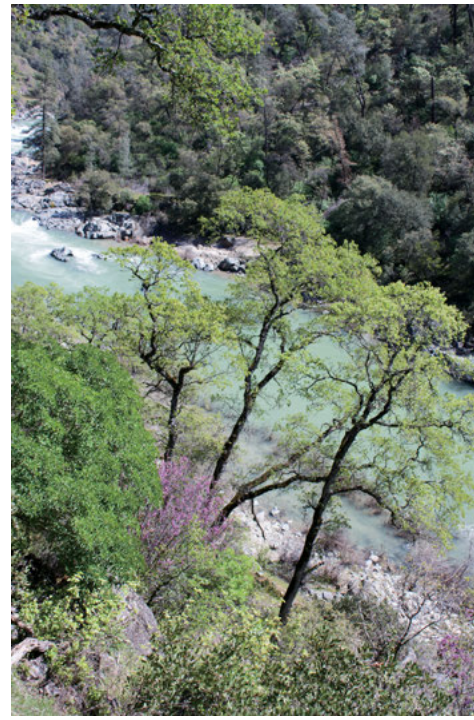
Sierra Nevada. The bands are actually a transition of one plant community into another, making sharp distinctions difficult. As you ascend the western slope of the Sierra Nevada from the Great Valley, you experience successive sections of foothill woodland and/or chaparral, followed by mixed coniferous forest, upper montane forest, subalpine forest, and finally the alpine zone. Descending the steep east slope, one encounters roughly the same communities in the opposite order: the alpine zone, subalpine forest, upper montane with piñon-juniper and sagebrush scrub substituting for mixed coniferous forest, and foothill woodland, respectively. Often, one cannot detect or draw a sharp distinction as to exactly where the foothill woodland gives rise to the mixed coniferous forest. The same is true for other vegetation types. Vegetation types are dynamic, changing in time because of plant succession, geologic, climatic, and hydrologic forces, fire, and human influences. As you become more familiar with each plant community, you will be able to predict what plants may occur.

In discussing the habitat and ranges of species, this book follows the convention in *The Jepson Manual* of dividing the Sierra Nevada region into northern, central, and southern subregions. Only when the plant is not found throughout the entire Sierra Nevada does the book indicate the subregion in which it is found; otherwise it is assumed that the plant is found throughout the entire Sierra Nevada. For example, the Sierra gentian is found only in the central and southern Sierra Nevada, and it is stated as such. By this, the northern Sierra Nevada is from the boundary with the Cascade Ranges from about Oroville south to about the Stanislaus River at the Calaveras-Tuolumne county line. This includes a small portion of Lassen County and all of Plumas, Sierra, Nevada, Placer, El Dorado, Amador, Alpine, and Calaveras Counties, as well as several counties located in the Carson Range of Nevada to the east and northeast of Lake Tahoe. The central subregion is south from there to the divide between the San Joaquin and Kings River drainages, approximately at CA 168, including Mono, Tuolumne, Mariposa, Madera, the northern portion of Fresno, and the northwest portion of Inyo Counties. The southern subregion extends south to the division between the Sierra Nevada and the Tehachapi Mountains, approximated by CA 58 and including the southern portion of Fresno, most of Inyo, and Tulare and Kern Counties.

Foothill Woodland

East of the grasslands of the Great Valleys is the foothill woodland vegetation type, occurring along the western slope of the Sierra Nevada, often on the moister north-facing slopes at an elevation of approximately 500 to 3,000 feet in the northern range of the

Sierra Nevada, 800 to 4,000 feet in the central range, and 1,250 to 5,000 feet in the southern end of the range. The annual rainfall in this area is 15 to 40 inches, with most falling in the late fall, winter, and early spring. Average summer temperatures range from seventy-five to ninety-six degrees F, and average winter temperatures range from twenty-nine to forty-two degrees F; the growing season lasts six to ten months. The foothill woodland is characterized by foothill pine (*Pinus sabiniana*), blue oak (*Quercus douglasii*), interior live oak (*Q. wislizeni*), California black oak (*Q. kelloggii*), California buckeye (*Aesculus californica*), and an understory of *Ceanothus* species, toyon (*Heteromeles arbutifolia*), dogwood species (*Cornus* spp.), and redbud (*Cercis occidentalis*).



Foothill Woodland (South Yuba River)

Chaparral

The chaparral forms an intermittent band along the western Sierra Nevada, sharing similar elevations with the foothill woodland. In the northern Sierra Nevada, chaparral occupies drier south-facing slopes on poor soils. In the central and southern Sierra Nevada, the chaparral becomes increasingly abundant. Lacking the large trees of the foothill woodland, the chaparral consists of a mosaic of tough, drought-adapted shrubs such as chamise (*Adenostoma fasciculatum*), California flannelbush (*Fremontodendron californica*), California coffeeberry (*Frangula californica*), and the manzanitas (*Arctostaphylos* spp.) and in the southern Sierra Nevada, chaparral yucca (*Hesperoyucca whipplei*).

Mixed Coniferous Forest

The mixed coniferous forest extends along the west side of the Sierra Nevada at an elevation of approximately 1,200 to 5,500 feet in the north, 2,000 to 6,500 feet in the central range, and 2,500 to 9,000 feet in the southern end of the range. This area receives between

Chaparral (Kings Canyon National Park)

25 and 80 inches of precipitation annually, much of it falling as snow. Average summer temperatures range from eighty to ninety-three degrees F, and average winter temperatures range from twenty-two to thirty-four degrees F. The growing season lasts four to seven months. With their headwaters near the crest, ten significant rivers and their tributaries dissect this zone, creating deep, steep-sided canyons. The mixed coniferous forest is characterized by ponderosa pine (*Pinus ponderosa*), sugar pine (*Pinus lambertiana*), Douglas-fir (*Pseudotsuga menziesii*), incense-cedar (*Calocedrus decurrens*), white fir (*Abies concolor*), and black oak (*Quercus kelloggii*), often with an understory of manzanita (*Arctostaphylos* spp.), canyon live oak (*Quercus chrysolepis*), dogwood (*Cornus* spp.), and mountain misery (*Chamaebatia foliolosa*). Giant sequoias (*Sequoiadendron giganteum*) are found in pockets from the northernmost location in Placer County in the Tahoe National Forest to the western central and southern Sierra Nevada in Sequoia National Forest.

Upper Montane Forest

The upper montane forest extends along the western slopes of the Sierra Nevada at an elevation of approximately 5,500 to 7,500 feet in the north, 6,500 to 8,000 feet in the central range, and 8,000 to 10,000 feet in the southern end of the range. On the east side