Excerpted from

CALIFORNIA NATURAL HISTORY GUIDES

INTRODUCTION TO CALIFORNIA SPRING WILDFLOWERS

of the Foothills, Valleys, and Coast

Revised Edition

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INTRODUCTION

California has long been considered an earthly paradise, especially in spring when its rolling hills and green valleys are full of wildflowers. About 6,000 flowering plants occur in the state, many of which, like the grasses (Poaceae) and sedges (Cyperaceae), are very important for grazing but not of especial interest to the wildflower lover. Even when these plants, the trees, and the more inconspicuous bushes are deleted from the list, however, several thousand true wildflowers still remain.

When we recall the great variety of topographical conditions in California and the plants we see in its different areas, we know that the desert flowers are quite different from those on coastal slopes and that summer bloomers in high mountains differ from the spring plants of the valleys. Therefore, to bring before the general reader in compact and useful form something by which wildflowers can be identified, this introductory book is presented. The more discriminating student can turn to *The Jepson Manual: Higher Plants of California,* by J. Hickman (ed.) (University of California Press, 1993) for more detail.

Climatic Conditions

Between the mountains and the coast the topography exhibits considerable range. Some of it is wooded, some is brushy, and some is grassland. But all of it shares the same general climatic pattern that has existed for a long period of time geologically, producing a vegetation quite characteristic and often spoken of as a Mediterranean type. The moisture comes overwhelmingly in the cooler winter months and is followed by a long, dry period that is very hot toward the interior and cooler only near the coast, where the fogs and humidity of the ocean air help to prolong the growth season much more than in the hot interior. In either instance, at lower altitudes, snow falls in

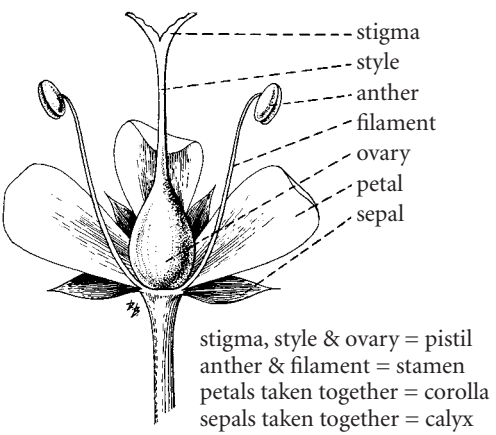
small amounts or not at all in winter, the flowering season is in spring, and there is little or no bloom in summer except along streams or about seeps and ditches. In the yellow pine belt and above, there is winter snow and the seasons are more like those in our more eastern and northern states.

This book deals largely with the area below the yellow pine and extending westward to the coast. It is an area of variable precipitation, from about 10 inches in the neighborhood of San Diego and parts of the Central Valley to about 100 inches in the extreme northern Coast Ranges. Usually, grassland prevails where the rainfall is from six to 20 inches; shrubby growth, chaparral, or scrub prevail in areas of rainfall from 15 to 25 inches; woodland is found where the rainfall is from 20 to 40 inches; and denser forest occurs in areas with higher rainfall, especially nearer the coast where the air is cool. These plant formations are not sharply separated by precipitation but often are by topography. Gently rolling hills may have grassland and, with a little more moisture, open woodland, whereas chaparral or other brush may appear on nearby stonier and steeper slopes.

Our broad-leaved evergreen trees and shrubs such as oaks (*Quercus* spp.) and California-lilacs (*Ceanothus* spp.) tend to have very harsh leaves with rather reduced surfaces as compared with their relatives in regions with summer rains, thus cutting down evaporation. Others may lose their leaves in the dry season, as does the California buckeye *(Aesculus californica)*. Still others, like the big-leaf maple *(Acer macrophyllum),* grow only where their roots have access to moisture at all seasons. Overall, our California conditions produce much open country that becomes green with the advent of the rains in late fall or early winter. Seedlings of flowering annuals develop slowly through winter as does the new growth on shrubs and trees. The greatest season of flowering is from February to April or even May. Then brownness and dormancy again set in, and summer is largely a period of inactivity.

How to Identify a Wildflower

For identification, it is most helpful to have flowers available and not just the vegetative parts of the plant. To refresh your memory, the parts of a typical flower are shown in the illustration and briefly defined here. We begin with the outer usually greenish sepals, known collectively as the calyx. The inner usually colored petals together constitute the corolla. Next, we find the stamens, each typically with an elongate basal portion, the filament, and a terminal more saclike part in which the pollen is produced, the anther. In the center, the pistil has a basal enlarged ovary containing the immature seeds. Above the ovary is an elongate style, and one or more terminal stigmas, on which the pollen grains fall or rub off on an insect or hummingbird. These many parts may be greatly modified. The sepals may be separate, more or less united, and alike or not alike. The same is true of the petals. The corolla may consist of separate, similar petals. Petals may be reduced or quite lacking, or they may be united to form tubular, often two-lipped, structures that afford landing platforms



The parts of a representative flower

for bees and other visitors, in which case the stamens and style may be arched over so as easily to deposit pollen on or receive it from the body of the insect. The ovary may be partly sunken into tissues below or fused with them in such fashion as to be evident below the flower instead of up in it. When you look at a flower, you should observe such conformations and should pay some attention to the number of parts of a given series, as the petals. Superficially, the blue flower of a gilia (*Gilia* spp.) may resemble that of a *Brodiaea,* but the former shows five petal parts, and the latter has six segments. In other words, it is necessary at times to examine flowers in detail and with care.

The wildflowers illustrated by line drawings or color photographs in the text are arranged in four sections: (1) white to pale cream or pale pink or greenish white; (2) rose to purplish red or brown; (3) blue to violet; and (4) greenish yellow or yellow to orange. The fifth section describes various trees with attractive spring blooms. Identification of a red flower, for example, can be attempted by leafing through the illustrations in "Reddish Flowers" and by reading the text accompanying the illustrations. Such an artificial arrangement is helpful but does not always work. A lupine flower that is bluish when young and fresh often changes to reddish as it grows old and is about to die. Then, too, individuals of the same species can vary greatly in color, say, from blue to lavender or almost white. Almost every species has albino forms—white variants for red and blue types, yellow for those normally red or scarlet. Remember that you must allow for variation in color, for change with age, and for the fact that in nature growth is not fixed but fairly inconstant.

Perhaps a word should be added about the richness of the California flora. The long, dry season when dormancy is the rule is accompanied in the wet part of the year by a great wealth of annuals, many of which are highly colored. Since David Douglas came to the state more than a century ago to seek bulbs and seeds for introduction into England, our plants have been much prized in northern Europe. They have

done well there because of the cool nights like our own and have been much used. Clarkias (*Clarkia* spp.), baby-blue-eyes *(Nemophila menziesii),* and gilias, for instance, commonly met in gardens there, have often been greatly developed horticulturally, with many color forms, double flowers, and the like. But with the increase in population in California and with the encroachment on wild lands by industry and agriculture, many California wildflowers are increasingly rare. They need protection if we and our children are to enjoy them. Turning the camera on them rather than picking them is the means to permanent enjoyment.

Many of the plants that now seem to us a natural constituent of the California landscape were not here when the first Europeans arrived. I refer to the mustards (*Brassica* spp.), filarees (*Erodium* spp.), wild oats (*Avena* spp.), and many others, some of which may be quite weedy and unattractive (tumbleweed *[Salsola tragus],* purslane *[Portulaca oleracea]*) or may be showy and add color to our fields and orchards (mustard, Bermuda-buttercup *[Oxalis pes-caprae],* foxglove *[Digitalis purpurea]*).

Most of the drawings used in this book are by Dr. Stephen S. Tillett of the New York Botanical Garden; a smaller number are by Professor Richard J. Shaw of Utah State University.

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