REPORT

ON THE

Trees and Shrubs of San Diego County, California.

BY C. R. ORCUTT.

TREES AND SHRUBS OF SAN DIEGO COUNTY, CALIFORNIA.

The northern part of San Diego County seems to form the southern limit of many of the trees and shrubs of the State, while on the other hand the southern part possesses a considerable number from the southern, or Mexican, flora. The county may be otherwise divided into the (1) coast region, where only a few shrubs and bushes may be found, with the single exception of the Soledad pine; (2) the lower foothills, including the larger valleys near the coast and the numerous cañons; (3) the higher foothills and the mountains below four thousand feet in altitude; (4) the mountains above four thousand feet; and (5) the desert region. As it will be of interest to know the limit of the distribution of our trees and shrubs, I add notes on those found extending southward into the Californian peninsula. I will now note the ligneous plants in their natural order.

Berberis Fremonti, Ton., is found near the desert in the southern part of the county, and in the mountains of Lower California. *B. Pinnata*, Lag., is found among the foothills but not abundant. These barberries are of no value.

The poppy family gives us the *Dendromecon rigidum* throughout the foothills southward, and the *Romneya coulteri*, which is found abundant as far south as San Vicente Mission, growing in the valleys and on the sides of the mountains.

Isomeris arborea is a small shrub found near the bay and southward.

Fouquiera splendens extends into the county along the desert borders from the south.

Malvastrum Thurberi, abundant on the mesas near the city, extending farther inland.

Fremontia Californica extends from the north into the peninsula near the boundary. This forms a small tree, and bears beautiful abutilon-like flowers.

Larrea Mexicana is a desert shrub.

Cueoridium dumosum extends from the coast into the foothills, southward into the peninsula.

Euonymus occidentalis finds its southern limit in the Cuyamaca Mountain.

Zizyphus Parryi, *Z. lycioides*, var. canesceus, and *Condalia spathulata*, are small desert shrubs. *Rhamnus crocea* extends into the foothills and southward; *R. Californica* and a variety taking its place in the mountains.

Adolphia Californica is a small bush, abundant near the city, that becomes a fair sized shrub further south in the peninsula.

Of the wild lilacs, *ceanothus*, *sorediatus*, *divaricatus*, and *cuneatus* are abundant near the coast back into the foothills, and even extending into the mountains, where *ceanothus integenimus* is also found. *C. rigidus* is found in the northern part of the county. The first named species extend into the peninsula as far as San Vicente.

Vitis Californica grows in some of the cañons back from the coast, but has not been observed southward.

No buckeye is known in the county, but *Æsculus Panyi* is found along the coast from north of Todos Santos Bay to Rosario, in Lower California, and forms a low shrub, the trunk with a dimaeter of a few inches to a foot or more.

Acer macrophyllum is found in the mountains in the northern part.

The sumacs are abundant, and all extend southward into Baja California. *Rhus laurina* is common near the coast in little cañons and among the foothills, where it forms large clumps, twenty feet or more in height. *R. integrifolia* forms a low shrub nearly a foot or two high on the ocean beach, but in the sheltered cañons near by it becomes a small sized tree. On Todos Santos Bay, Lower California, I have seen the trunk nearly two feet in diameter, and fifteen to twenty feet high. *R. ovata* takes its place in the higher foothills. This species produces a sugar which is collected by Indians sometimes. The fruit, like the preceding and other species, is red, a pleasant tart, and when put in water makes a cooling drink. The fruit is also credited with medicinal qualities.

The poison oak, *rhus diversiloba*, is also abundant throughout the county and southward usually near watercourses.

Rhus armatica, var. *trilobata*, and var. *indivisa*, are found among the hills and mountains, the latter extending into Lower California. They are merely small bushes.

A large shrubby lupine, *Lupinus albicaulis* or *L. douglasii* (perhaps both species), is found among the hills; abundant south.

Proralea macrostachya and *Amorpha Californica*, are tall, slender shrubs, belonging to the leguminosæ, common near water among the foothills, and extending southward; the latter also growing in the mountains.

One or more shrubby daleas are found on the desert and in the cañons leading to the desert, where are also found various other small trees like the iron wood, *Olneya tesota*, *Parkinsonia torreyana*, *Palo veide*, *Prosopis juliflora*, *Mesquit*, *Prosopis pubescens*, screw bean, and *Acacia greggii*. The three latter species are found west of the Sierras also, and extend southward among the foothills, often forming the only trees in many of the larger desert valleys.

Primus ilicifolia, oak-leaf cherry, grows throughout the county, southward. *P. demissa*, our choke cherry, is found in the high mountains of the northern part. *P. fremonti* and *P. fasciculata* are desert shrubs, the former abundant near the coast, also south of Todos Santos Bay, Lower California.

Chamæbatia foliolosa, the tar bush, is found on some of the mountains and hills near the coast and southward. *Purshia tridentata* is a small desert brush.

Cercocarpus parvifolius, the feather tree, grows twenty feet high or more in favorable locations, and is abundant throughout the county, and southward among the foothills.

Adenostoma fasciculatum, or greasewood, forms a considerable part of the firewood brought into town by Mexicans, and covers large areas of mesas and hills throughout the county from Port Lama into the mountains, and southward as far as San Telmo. *A. sparsifolium* largely takes its place among the lower mountains, and is generally called deer brush. From two to ten feet is the usual height of both species.

Rosa Californica and *Heteromeles arbutifolia* extend throughout the county into Lower California.

Several species of *ribes* grow in the county, but are of no value.

Cornus Californica is found as far south as Cuyamaca Mountain. *Gauya flavescens*, var. *Palmeri*, is a small shrub found among the mountains

along our southern frontier, extending into the higher mountains of the peninsula.

Sambucus glauca, elder, grows in abundance, sometimes attaining considerable size.

The composite shrubs are various species of *baccharis*, *pluchea*, *borealis*, *hymenoclea salsola*, and *moagyra*, several *artemisias*, and a *tetradymia*, which constitute a large part of the brush along our watercourses and on our hills.

Six kinds of manzanitas are also known with us. *Arctostaphylos bicolor*, growing near the coast, *A. oppositifolia* and *A. diversifolia*, straying near the border from Mexico, and *A. pungens*, *glauca*, and *tomentosa*, which extend from the north through the mountains into Lower California.

Rhododendrar occidentale is found in Cuyamaca Mountain—doubtless its southern limit.

Fraxinus Oregana—Oregon ash; possibly strays into the county on the north, and *F. dipstala*, the beautiful flowering ash, which forms a small tree, strays in from the south. Two kinds of yerba santa, credited with great medicinal properties, are found in the county—*Eriodictaon tomentosum*, near the coast, and *E. glutinosum*, among the hills and mountains. A third and more valuable species is found around Todos Santos Bay, where it takes the place of *E. tomentosum*.

The tobacco tree, *nicotiana glauca*, though not a native, is fairly naturalized near the city. Several species of *lycium* grow in the county, some ten feet high or more.

Miumlus glutinosis and *M. puniceus* are small bushes bearing beautiful and showy flowers in the Spring. The latter grows near the coast.

Chilopsis saligna, the desert willow, is found on the desert border, at Jacumba.

The white sage, *Andibertia polystachya*, is scarcely more than brush, but grows six to ten feet high, and forms an important plant, making excellent bee pastures. *Andibertia stachyoides*, *A. trichostema*, *Eriogonum fasciculatum*, *Atriplex canesceus*, *Eurotia lanata*, of the desert, etc., are other kinds of brush that can scarcely be called shrubs.

The laurel, *Umbellularia Californica*, extends into the county from the north, and is said to be found on Cuyamaca Mountain.

Sycamores, *Planus racemosus* are found along the watercourses, among the hills, as far south as San Quentin Bay, Lower California.

Simmondia Californica, common around San Diego and in the cañons, often forms a small graceful tree south of the line. Along San Diego Bay it grows scarcely two feet high. It bears an oily nut that is not unpleasant eating. *Euphorbia misera* is a small shrub, extending from Point Loma southward among the hills, near the coast, to Rosario, Lower California. *Acalypha Californica* very rarely becomes a small shrub.

Alnus oblongifolia is found near the headwaters of the San Diego River, in the Jamacha Valley, and on the mountains, growing to a height of forty feet or more, and a foot in diameter.

Willows are found along the watercourses throughout the county, *Salix lasivlepis* probably being the commonest species. Cottonwood are abundant in some of the inland valleys, *Populus fremonte* var. *wislizeni* being the species common in the south. *P. trichocarpa* strays into the county in the north, as also *Juglaus Californica*—the wild Californian walnut, and *Castanopsis chrysaphilla*.

Quercus dianosa—a worthless shrub oak—is common throughout the county, and southward another shrub oak, *Q. pungens*, strays into the

county from Arizona, and is found near camps on the southern boundary with *Q. Dunnii*—the holly-leaved shrub oak which is better known as *Q. Palmeri*. The Californian live oak, *Q. agrifolia*, grows abundantly among the hills, reaching an elevation of five thousand feet, and is found southward in the peninsula to near the Sta. Tomas Mission. This furnishes a large part of the oak wood that is used in San Diego. *Q. oblongifolia*, known as the post, or white oak, is found among the valleys and higher foothills. *Q. Emoryi*, a small tree, extends into the mountains of Lower California south of the line, and may be found in the county. *Quercus Kelloggi* and *Q. crysolepis* are found in abundance on Cuyamaca Mountain northward, and I have seen a few stunted trees of the latter near Hanson's Ranch in Lower California.

Juniperus Californicus is not rare on the mountains, and extends northward into the peninsula to near the coast among the foothills. Two kinds of cypress grow near the city among the hills, one probably *Cupressus macrocarpa*, and the other a stunted form of the beautiful Guadaloupe Island cypress, *Cupressus guadaloupensis*, which extends south into the peninsula.

The only survivers of *Pinus tonrryana*, a small tree belonging to a past age, are found along the ocean bluff at Soledad twenty miles north of San Diego. Near Elsinore a few pines are found that seem to belong to *Pinus tuberculata*. On the mountains east, at an altitude of six or seven thousand feet, are found the sugar pine—*Pinus lambertiana*, *Pinus coulteri*, *Pinus pondersoa*, *Pinus sabiniana*, and the *Pseudotsuga douglasii*, var. *Macroscarpa*. At Pine Valley and elsewhere, are found the large yellow or bull pine, *Pinus jeffreyi*, which extends south into the Lower California mountains, where they form large forests at Hanson's ranch. Coulter's pine also extends into Lower California, but seems exceedingly rare. On the table lands overlooking the desert are found the two piñon or nut pines, *Pinus monophylla* and *Pinus parryana*, which are found sound in the broad table lands of Lower California to an altitude of six thousand feet, where *Pinus parryana* predominates over the more northern species, which seems to be restricted to a narrow belt next to the desert.

Mr. Robert C. E. Stearns, Ph.D., of Berkeley, publishes in the *American Journal of Forestry*, as quoted by Dr. Chipman, the following statement as to the profits of planting the *Eucalyptus globulus*: "General Stratton planted forty-five acres in eucalyptus in 1869. Recently twenty acres of this artificial forest have been cleared to make room for an orchard, and after charging every item of cost and a yearly rental of five dollars per acre, the net profits, as shown by the owner, are $3,866 on the twenty acres in eleven years." Dr. M. M. Chipman also cites in an article on the Importance to Health of Forests, published in the transactions of the Medical Society of the State of California, the statement of Mr. George A. Nadeau as to the value of a eucalyptus grove under his control, seven miles south of Los Angeles. Cost of trees at the time of setting out $7 50 per acre; labor of replanting, $5 per acre; after cultivation, $5 per acre; rental of land at $3 per acre per annum, amounts to $21 per acre for the seven years; total cost per acre for the seven years growth, $38 50. The estimated average amount of the wood on the land is thirty-five cords per acre, which is worth in that locality $3 per cord in the tree, giving $105 per acre as the present value of the timber; or the total cost of the body of timber, $3,734 50, and the present value, $10,185; net profit, $6,450 50." These eucalyptus grow readily and rapidly from the stump, and produce with little care and in a short time, another merchantable crop. It must be borne in mind, however,

that the *E. globulus* only does well in at least a moderately moist situation, as has been before stated in this report.

Last, but not least, are the beautiful California palms so highly prized by horticulturists. The fan palm, *Washingtonia filifera*, is found abundant in the cañons leading to the Colorado Desert, where also are found a few of the blue palms, *Erythea armata*. Other varieties or species may exist, as these magnificent trees are little known, and new discoveries likely to be made when our desert borders are more fully explored. These palms are found in Lower California in the desert cañons, and also west of the mountains, the Washingtonia appearing in a few cañons at Valle de Los Palmas, Lower California (about fifty miles from San Diego), and the blue palm growing near San Quentin Bay.

In this hasty outline of our native trees and shrubs, and of their distribution, it seems desirable to add that nearly all of the shrubs mentioned in the preceding, disappear one by one as we proceed southward along the coast road in Lower California, and other plants—mainly cactus—take their places. The more common shrubs continue as far south as San Quentin Bay, where the last of the trees, and many of the shrubs, will be left behind, and there the botanist will enter upon the dividing belt between the tropical and the temperate floras.

C. R. ORCUTT.