

**California Wildlife Habitat Relationships System
California Department of Fish and Game
California Interagency Wildlife Task Group**

DECIDUOUS ORCHARD

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Vegetation

Structure-- Deciduous orchards in California are typically open single species tree dominated habitats. Depending on the tree type and pruning methods they are usually low, bushy trees with an open understory to facilitate harvest. Deciduous orchards include trees, such as, almonds, apples, apricots, cherries, figs, nectarines, peaches, pears, pecans, pistachios, plums, pomegranates, prunes and walnuts. Trees range in height at maturity for many species from 5 to 10 m (15 to 30 ft), but may be 3 m (10 ft) or less in pomegranates and some dwarf varieties, or 18 m (60 ft) or more in pecans and walnuts (Sunset, 1972). Crowns usually touch, and are usually in a linear pattern. Spacing between trees is uniform depending on desired spread of mature trees. The understory is usually composed of low-growing grasses, legumes, and other herbaceous plants, but may be managed to prevent understory growth totally or partially, such as along tree rows.

Composition-- The California Agriculture - Statistical Review 1990 (California Department of Food and Agriculture, 1991) indicated that of the 14 deciduous orchard crops mentioned above there were about 942,300 acres in production. Acres by type were approximately:

| | | |
|------------|---------|-------|
| Almonds | 411,000 | acres |
| Apples | 31,000 | " |
| Apricots | 16,700 | " |
| Cherries | 10,600 | " |
| Figs | 16,700 | " |
| Nectarines | 25,400 | " |
| Peaches | 54,400 | " |
| Pears | 23,300 | " |
| Pecans | 2,600 | " |
| Pistachios | 49,800 | " |
| Plums | 41,700 | " |
| Prunes | 78,000 | " |
| Walnuts | 181,000 | " |
| | | |
| TOTAL | 942,300 | acres |

The understory in deciduous orchards often has herbaceous annuals and perennials during the winter months. In some orchards cover crops of resident species (weeds) are present year round or are cultivated in the spring and summer. Many orchards are treated in strips down the tree rows with herbicides. The cover crop can be composed of either natural or planted domesticated herbaceous plants. Natural herbaceous plants commonly consist of perennial grasses such as bermuda or johnsongrass; or annual grasses such as soft chess, annual ryegrass, wildoats, red brome, red fescue, barnyardgrass, and others; or forbs such as wild mustard, fiddleneck, and filaree, depending on seed sources in the area.

Numerous grasses and legumes are planted as cover crops in deciduous orchards either as single species or in mixes. Cover crops of domesticated grasses and legumes generally fall into four categories (Finch and Sharp, 1981):

- 1) Annually seeded winter growing grasses and legumes, such as, cereal rye, barley, oats, annual ryegrass or purple vetch;
- 2) Reseeding winter annual grasses and legumes, such as, Blando brome, Zorro annual fescue, Wimmera-62 ryegrass, annual bluegrass, Lana woolypod vetch, rose clover, crimson clover, bur clover, subclover, and black medic;
- 3) Summer annuals, such as, Sudan grass, grain, sorghums, and California blackeye bean; and
- 4) Perennial grasses and legumes, such as, tall fescue, creeping red fescue, orchardgrass, perennial ryegrass, narrowleaf trefoil, Salina strawberry clover, and ladino clover.

Other Classifications-- Most vegetation classification systems include deciduous orchards in more general categories, such as, Agriculture (California Department of Fish and Game, 1966), Urban/Agriculture (Parker and Matyas, 1981).

Habitat Stages

Vegetation Changes-- Deciduous orchards are planted in uniform patterns and intensively managed. They are usually established as sapling trees (2), and most are managed to grow to small trees (4) size. However, trees such as pecans and walnuts grow to size class medium/large trees (5). Canopy closure classes range from sparse (S) to dense (D). As trees become old or in some way damaged or diseased they are usually replaced. In some cases however, entire orchards may be replaced with young trees. A few orchards have been in the Nevada Mountains, and in coastal areas. They are eventually invaded by naturalized or native herbaceous plants followed by shrubs and trees. orchards usually have some growth of herbaceous plants in the understory.

Duration of Stages-- Duration of deciduous orchards vary depending on species. Fruit and nut trees are long lived, however most are replaced at approximately 20*-40 years old. Replacement of such orchards is usually a result of product price fluctuations

or a decline in productivity.

Biological Setting

Habitat--- Orchards are typically associated with other agricultural types such as Irrigated Grain and Seed Crops (GRI), Row and Field Crops (RFC), Pasture (PAS), and some are near urban (UR*B) types. They are frequently associated with Valley-Foothill Riparian (VRI) areas, shrub habitats (Mixed chaparral (MCH*)), herbaceous types, such as, Annual Grasslands (AGS), a few tree types, such as, Valley-Foothill Hardwood (VFH), Valley-Foothill Hardwood-Conifer (VHC), and Ponderosa Pine (PPN).

Wildlife Considerations-- Orchards have been planted on deep fertile soils which once supported productive and diverse natural habitats. Larger and more diverse populations of wildlife were also supported by these native habitats. However, some species of birds and mammals have adapted to the orchard habitats. Many have become "agricultural pests" which has resulted in intensive efforts to reduce crop losses through fencing, sound guns, or other management techniques. Wildlife, such as, deer and rabbit browse on the trees; other wildlife such as squirrel and numerous birds feed on fruit or nuts. Some wildlife (e.g. morning dove, California quail) are more passive in their use of the habitat for cover and nesting sites. Deciduous orchards can be especially beneficial to wildlife during hot summer periods. However, they provide much less cover from rain and cold during the winter months when leaves have dropped. Water can be beneficial in irrigated orchards. Many wildlife species act as biological control agents by feeding on weed seeds and insect pests.

The literature is generally lacking on wildlife associated with these habitats except as it relates to pests and pest control. Martin et al. (1951) gives an overview of wildlife use of plants for food. Examples of wildlife reported to commonly feed on nuts (almonds and walnuts) include northern flicker, scrub jay, American crow, plain titmouse, Brewer's blackbird, house finch, gray squirrel and California ground squirrel. Some other orchard crops such as apples, cherries, figs, pears and prunes are also eaten by these same species plus others such as band-tailed pigeon, yellow-billed magpie, western bluebird, American robin, varried thrush, northern mockingbird, cedar waxwing, yellow-rumped warbler, black-headed grosbeak, Bullock's oriole, desert cottontail, western gray squirrel, coyote, black bear, raccoon, and mule deer.

Physical Setting

Deciduous orchards can be found on flat alluvial soils in the valley floors, in rolling foothill areas, or on relatively steep slopes. Though some deciduous orchards are non-irrigated, most are irrigated. Some flat soils are flood irrigated, but many deciduous orchards are sprinkler irrigated. Large numbers of orchards are irrigated by drip or trickle irrigation systems. Most deciduous orchards are in valley or foothill areas, with a few, such as, apples and pears, up to 3000 feet elevation.

Distribution

In 1990 there were nearly 942,300 acres of deciduous orchards in California. Commercial deciduous orchards are grown in nearly every county except Alpine, Lassen, Modoc, Mono, Plumas, San Francisco, and Trinity counties.

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