

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

IRRIGATED ROW AND FIELD CROPS Ronald F. Schultze

Vegetation

Structure-- Vegetation in this habitat includes a variety of sizes, shapes and growing patterns. Cotton and asparagus can be three or four feet tall while others may be a foot or less high. Most irrigated row and field crops are grown in rows. Some may form 100 percent canopy while others may have significant bare areas between rows. Most are annuals, while others, such as asparagus and strawberries are perennial. The annuals are usually planted in spring and harvested in summer or fall. However, they may be planted in rotation with other irrigated crops and sometimes winter wheat or barley may be planted after harvest of a previous crop in the fall, dry farmed (during the wet winter and early spring months), and then harvested in the late spring. In some areas of southern California three crops may be grown in a year.

Composition-- The California Agriculture - Statistical Review 1990 (California Department of Food and Agriculture, 1991) reported that 2,290,800 acres of row and field crops were produced commercially in 1990. Following is a summary of the top 18 row and field crops grown in 1990:

Asparagus	35,900 acres
Broccoli	97,500 "
Carrots	56,100 "
Cauliflower	51,300 "
Celery	24,800 "
Cucumbers	4,700 "
Lettuce	162,200 "
Honeydew melons	19,000 "
Other melons	3,500 "
Onions	39,000 "
Peppers, Chili	4,100 "
Tomatoes	348,000 "
Strawberries	20,000 "
Cotton1,	115,000 "
Potatoes	50,000 "
Sweet potatoes	8,300 "
Sugar Beets	167,000 "
TOTAL	2,290,000 acres

Artichokes, brussel sprouts, cowpeas, garlic, mustard greens, spinach, and vegetable and flower seeds are other types of row and field crops, but there was no acreage reported in the 1990 report. All of these crops are irrigated in California.

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

Habitat Stages

Vegetation Changes-- Row and field crops do not conform to normal habitat stages. Instead, these crops are regulated by the crop cycle in California. Crops such as broccoli, cantaloupes and other melons, garlic, onions, and lettuce are annuals or grown as annuals (some are botanically biennials), while crops such as asparagus and strawberries are perennials. Crop rotation systems are common in California. These systems rotate crop types (usually between annuals but may include perennials such as alfalfa) to conserve soil nutrients, thus maintaining soil productivity, and to break crop pests life cycles.

Duration of Stages-- Row and field crops in California are mostly annuals and are usually managed in a crop rotation system. Alfalfa is a perennial that is often included within the crops rotation, in part because it fixes nitrogen in the soil. Generally, the crop rotation system employes a combination of annual and perennial crops on a 5-7 year rotation. For example, in the San Joaquin valley, cotton will be planted and maintained for 3 years, followed by 3 years of alfalfa and 1 year of grain. In Imperial and Ventura Counties crops are cultivated year-round. Double and triple cropping is a common practice in some areas. After the first crop is harvested, a second and sometimes a third crop is planted and harvested depending on species and climate. For example, in Ventura County, on the Oxnard plain, cool weather crops such as lettuce and cabbage are grown in the fall and winter followed by tomatoes, corn, or peppers in the spring and summer. However, exceptions do exist, for example sugar beets, winter wheat, and barley are planted in the summer or fall and harvested the following spring.

Biological Setting

Habitat-- Row and field crops occur in association with orchards, vineyards, pasture, urban, and other wildlife habitats such as riparian, chaparral, wetlands, desert, and herbaceous types.

Wildlife Considerations-- Row and field crops are established on the State's most fertile soils, which historically supported an abundance of wildlife unequalled in other sites. Croplands have greatly reduced wildlife habitat richness and diversity in these areas of California. Many species of rodents and birds have adapted to croplands and are controlled by fencing, trapping, and poisoning to prevent excessive crop losses

(California Department of Food and Agriculture, 1975). Prior to establishing State and Federal wildlife refuges, waterfowl depredation of crops was extensive. That problem has been essentially eliminated. Deer, elk, antelope, and wild pigs forage in alfalfa and on some other row and field crops and can cause depredation problems. Pheasants introduced to the cropland habitat have experienced recent population declines owing to changes in crop patterns and cultural practices for growing these crops. Changes include clean farming, double cropping, and chemical control of diseases and pests rather than leaving land fallow in alternate years. Except for insectivores, raptors, and doves for example, some birds and mammals (e.g., rodents, rabbits) that become too numerous can cause serious crop losses and are generally not welcomed by growers. Availability of irrigation water during dryer months benefits many wildlife species as a source of water.

Physical Setting

Row and field crops are located on flat to gently rolling terrain. When flat terrain is put into crop production, it usually is leveled to facilitate irrigation. Rolling terrain usually irrigated by sprinklers. Soils often dictate the crops grown. Cotton and sugar beets can grow on poor quality, alkaline soils, these soils are not suited for many row and field crops unless leaching of salts is practiced. Leaching can remove contaminants in areas of high salt or alkali levels, making the soils highly productive. This has occurred extensively in the San Joaquin and Imperial valleys. Climate also influences the types of crops grown. Only hardy crops such as potatoes, barley, cereal rye, and wheat do well in the short growing season in the Klamath Basin; whereas, in the Imperial Valley, a variety of crops grow over an eleven month, frost-free growing season.

Distribution

There were over 2,290,800 acres of row and field crops grown in California in 1990.

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