

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

IRRIGATED GRAIN CROPS

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Vegetation

Structure-- Vegetation in this habitat includes a variety of sizes, shapes and growing patterns. Field corn can reach ten feet tall while dry beans are only several inches tall. Most irrigated grain and seed crops are grown in rows. Some may form 100 percent canopy while others may have significant bare areas between rows. All seed and grain crops are annuals. They 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) or they may be irrigated, and then harvested in the late spring.

Composition-- The California Agriculture - Statistical Review 1990 (California Department of Food and Agriculture, 1991) reported that 180,000 acres of corn, 116,600 acres of safflower, and 168,000 acres of dry beans were grown in California. About 40-50% of barley (100,000 acres) and 75% of wheat (460,000 acres) is irrigated. Milo, grain sorghum, and sunflowers are other types of irrigated grain and seed crops, but there was no report on the acreage produced in 1990. Thus there were about 1,024,000 acres of irrigated grain and seed crops (GRI) grown in California in 1990. Rice (RIC), which is another type of irrigated grain and seed crop, is identified as a different habitat type because of its unique cultural techniques and wildlife use.

Other Classifications-- Most vegetation classification systems include irrigated grain and seed 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-- Irrigated grain and seed crops do not conform to normal habitat stages. Instead, these crops are regulated by the crop cycle in California. They are all annuals. Crop rotation systems are common in California. The system rotates crop types (usually between annuals but may include perennials such as alfalfa) to conserve soil nutrients, thus maintaining soil productivity. Crop rotation is also useful in breaking crop pest life cycles, thus reducing pest populations.

Duration of Stages-- Irrigated grain and seed crops in California are annuals and are usually managed in a crop rotation system. Generally, the crop rotation system employs 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, or peppers in the spring and summer.

Biological Setting

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

Wildlife Considerations-- Irrigated grain and seed 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 the wildlife habitat richness and diversity in 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). Hawks, owls and other predators feed on these rodents. Prior to establishing State and Federal wildlife refuges, waterfowl depredation of crops was extensive. That problem has been essentially eliminated; however, some species of waterfowl depend on waste rice and corn that remain in the fields after harvesting (California Department of Fish and Game, 1983). Deer, elk, antelope, and wild pigs forage in alfalfa and grain fields 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 small grains. 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, doves, and pheasants, avian wildlife that becomes numerous and uses crops before they are harvested are generally not welcome by growers. Wildlife such as waterfowl, sandhill cranes, and other species that use waste grains after harvest are usually not discouraged. Croplands flooded for weed control, leaching, irrigation, or waterfowl hunting serve as freshwater wetlands for a variety of associated wetland wildlife, including shorebirds, wading birds, and gulls. Availability of irrigation water during dryer months also benefits many wildlife species as a source of water.

Physical Setting

Irrigated grain and seed 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 is either dry farmed or irrigated by sprinklers. Soils often dictate the crops grown.

Corn requires better soils than barley, which can grow on poor quality soils, such as, saline and alkaline soils. Rice and barley can do well on clay soils not suitable for other crops. 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 1,024,000 acres of irrigated barley, wheat, corn, safflower, and dry beans grown in California in 1990. Other crops such as milo, grain sorghum and sunflower were also grown, but amounts were not reported for 1990.

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