

supporting alfalfa (31%), which in turn support more than fields of bare dirt (24%). However,  $\pm 70\%$  of the birds detected during this study were of three species (in decreasing order of abundance): the Ring-billed Gull, Cattle Egret, and Red-winged Blackbird, so generalizations about microhabitat use cannot be made.

**THE SALTON SEA.** Even though the Salton Sea does not support vegetation *per se*, remnants of vegetation are crucial to breeding waterbirds. Drowned shrubs evident when the sea first flooded (Fig. 8; MacDougal 1914) have long since disappeared. Rising water levels in the 1950s and 1960s drowned many mesquites, salt cedars, and cottonwoods that formerly grew near the shoreline, especially around the river mouths and various other locales with fresh-water inflow. These drowned trees remain as snags that are used by numerous breeding cormorants, herons, and egrets. Thousands of these snags are scattered along the shoreline in the vicinity of the Whitewater River delta, Wister, Morton Bay, and Bruchard Bay (Fig. 19). Similar snags at Finney and Ramer Lakes and Fig Lagoon also serve as nest and roost sites.

Snags are the closest things to vegetative habitat that is part of the Salton Sea itself, but they are far from the only habitat the sea offers. The open water is used by tens of millions of waterbirds each year, including 2-3 million Eared Grebes alone. Hoards of pelicans, cormorants, ducks, gulls, and terns make ready use of the abundant habitat and its resources. The shoreline varies from mudflats around river mouths and bays to barnacle beaches at Salton City and many parts of the sea with favorable wave action. Breakwaters, jetties, marinas, pilings, and embankments offer roosting and foraging opportunities to pelicans, shorebirds, and larids. Some even provide nest sites for tern colonies. Shallow impoundments of fresh or brackish water that border the sea along Morton Bay, near Oasis, and at various other locales provide an abundance of foraging habitat for shorebirds (Fig. 20). Foraging herons and ibis heavily use similar ponds with slightly deeper water and a marshy fringe.

### **Breeding Seabirds**

The saline water of the Salton Sea and the sea's tight relationship with the Gulf of California combine to create a landlocked haven for seabirds. The Salton Sea hosts the largest breeding population of the Gull-billed Tern in the western United States and significant breeding populations of the Black Skimmer and Caspian Tern (Fig. 21). Small numbers of Forster's Tern also breed. Recent years have witnessed the colonization of two additions to this list of breeders. Beginning in 1997, California Gulls began to nest off Obsidian Butte. The nearest established breeding population is at Mono Lake in the western Great Basin. In 1996 the Brown Pelican began to nest at various locales around the south end. Aside from locales in central Florida (e.g., Lake Okeechobee), the Salton Sea is the only inland site where this species breeds. The Laughing Gull, formerly a regular nesting species, still breeds on occasion. Lastly, the Salton Sea is a breeding stronghold in the West for the principally coastal Snowy Plover.

Apart from the California Gull, each of these species breeds commonly in the Gulf of California (Anderson et al. 1976, Wilbur 1987). Several other seabirds that breed in the gulf occur at the Salton Sea with some regularity. Chief among these species are Heermann's Gull, the Yellow-footed Gull, and the Least Tern. Displaying pairs of each species have been observed in recent years (1995-1999) at the Salton Sea, probably portending future breeding. Other seabirds that breed in the gulf, such as the Elegant Tern, have occurred at the Salton Sea with increasing frequency in the 1990s, but without evidence of breeding activity.

### **Breeding Waterbirds**

Numerous waterbirds breed in the Salton Sea region. The breeding avifauna shows no clear affinities with any adjacent regions, although it is most like that of the lower Colorado River valley (see Rosenberg et al. 1991). A principal difference is the sheer magnitude of breeding waterbirds in the Salton Sink, where many species have their largest breeding population in the interior Southwest. The relative composition of the avifauna differs, yet both regions share many breeding species. Notable absentees from the Colorado River region are the Cattle Egrets, which nest in the Salton Sink in the tens of thousands, and the White-faced Ibis, a regular but decidedly less numerous breeder.

Chief among breeding waterbirds in the Salton Sink are the Double-crested Cormorant and various species of herons and egrets, each with thousands of pairs nesting annually. The Salton Sink is the principal breeding locale in the interior Southwest for the cormorant. Nesting birds occur mainly at the Salton Sea itself, with a few pairs at Finney and Ramer Lakes and probably Fig Lagoon. Birds at the sea