Montane, Plains and Great Basin Marshlands

Marshes, nowhere extensive in the Southwest, occupy only a small area in this climatic zone so that their wildlife values are particularly high. Some larger, natural examples include Mormon and Stoneman lakes in Arizona, and Buford (Stinking), Boulder, and Horse lakes in New Mexico. Other sizable areas of natural and "managed" marshlands occur near Las Vegas, New Mexico (e.g., on Monte Vista and Alamosa National Wildlife refuges). Smaller examples are clustered in poorly-drained portions of the Mogollon Rim in Arizona, especially where sinkholes have developed through subsurface solution, and occasionally elsewhere within montane forests as well as in the Plains and Great Basin (Fig. 160; Wright, 1964; Wright and Bent, 1968).

Marsh vegetation is characteristically "zoned" along a littoral gradient. Depending upon seasonal water depth, water chemistry, time and "chance," it may be composed largely of emergent plants such as cattail (*Typha latifolia*), bulrush or tule (*Scirpus acutus*), rushes (*Juncus* spp.), sedges (*Carex* spp.), Three-square (*Scirpus americanus*), Salt Grass (*Distichlis stricta*), etc., or be mostly submergent, e.g., series of Water Milfoil (*Myriophyllum spicatum*), pondweeds (*Potamogeton* spp.), introduced water-weed (*Elodea* spp.), manna grasses (*Glyceria* spp.), or charophytes (*Chara* spp., *Nitella* spp.). Often there is some interspersion with trees and shrubs, particularly willows. Spike-rushes (*Eleocharis* spp.) are characteristic emergents in marshes subject to desiccation, and often occur there in monospecific stands (Figs. 161, 162).

These marshlands provide feeding and watering habitat for a number of migratory bats. Muskrats (*Ondatra zibethicus*) may be common all year. The Western Jumping Mouse is best represented in interior marshes, while Mink (*Mustela vison*) is rare, and apparently restricted in the Southwest to a few wetlands in and near the Sangre de Cristo Mountains.

Almost all cold-temperate marshlands host some nesting as well as migrating waterfowl. The principal species are Mallard, Pintail (*Anas acuta*), Cinnamon Teal (*A. cyanoptera*), Redhead (*Aythya americana*), and Ruddy Duck (*Oxyura jamiacensis*). Although no longer a nesting bird in the Southwest, the Sandhill Crane (*Grus canadensis*) still relies heavily on several of those areas for staging sites during migration. The short-statured and more open plant associations are used by cranes, waterfowl, and numerous shorebirds, and the taller structured emergents such as bulrushes (*Scirpus americanus, S. acutus,* etc.) may provide nesting sites for American Bittern (*Botaurus lentiginosus*), Virginia Rail (*Rallus limicola*), Sora, Common Yellow Throat (*Geothlypis trichas*), Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*), Red-winged Blackbird (*Agelaius phoeniceus*), and Long-billed Marsh Wren (*Cistotherus palustris*).

Western Garter Snake is the most commonly encountered reptile, and Leopard Frogs (*Rana pipiens* complex) and Tiger Salamander are amphibians found throughout the region. Cricket Frogs, although indicative, are local in distribution.

Fishes are rarely present in these habitats, other than the young of minnows and suckers that are seasonally present in marshy areas adjacent to streams. Marshlands with open water have been stocked with numerous exotics, however, including salmonids for seasonal fisheries. Others include eastern centrarchids and cyprinids, many of which are now

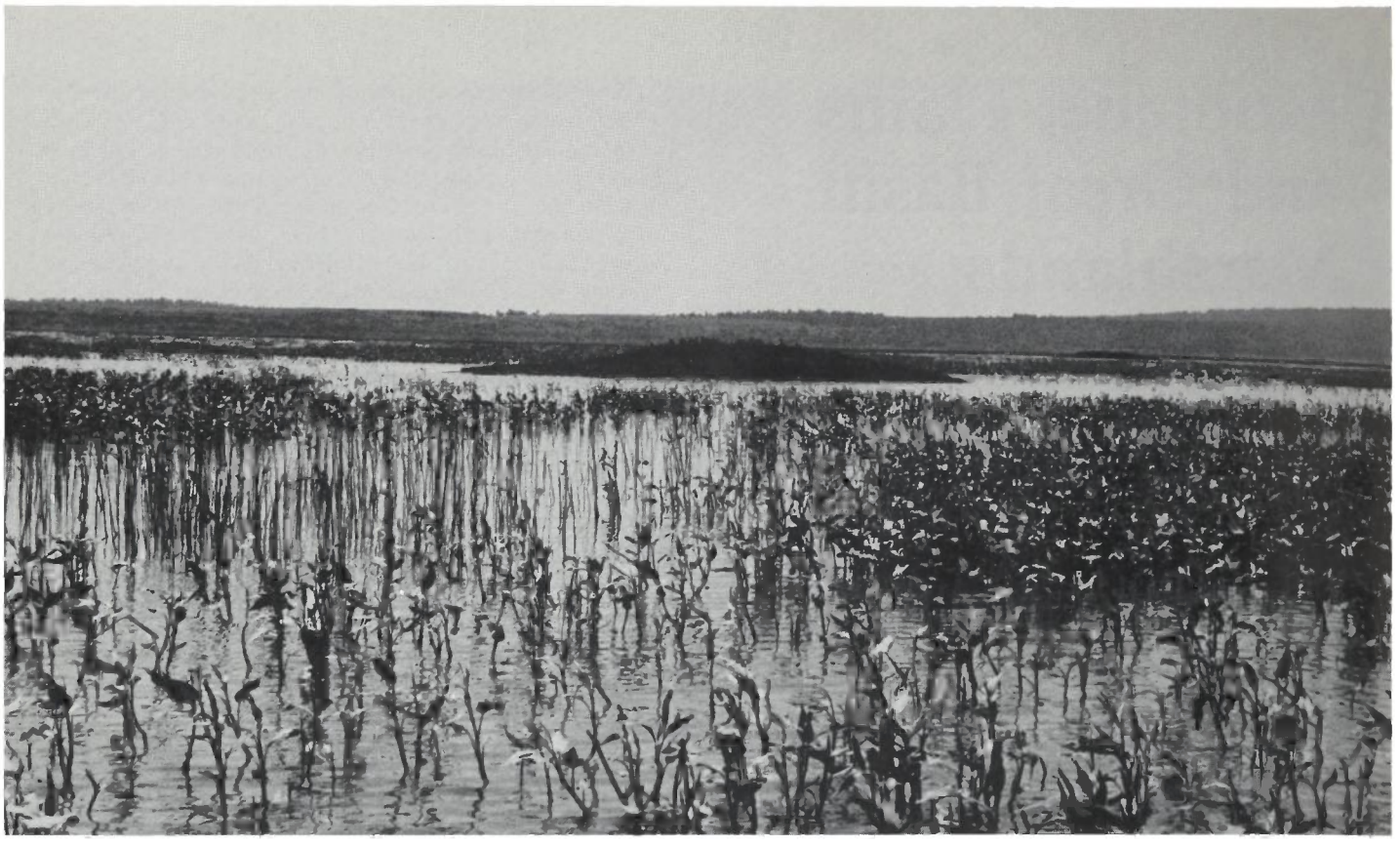

Figure 160. *Montane (Rocky Mountain) marshland of waterweed* (**Sagittaria** *spp.*), *a widespread, cold temperate taxon, at Mormon Lake, Coconino National Forest, Coconino County, Arizona. Elevation ca. 2,150 m.*

Figure 161. *Montane marshland of Spikerush* (**Eleocharis parvula**) *at Sunflower Flat, Kaibab National Forest, Coconino County, Arizona. A seasonally flooded environment that provides waterfowl nesting habitat on an interim basis. Elevation ca. 2,150 m.*

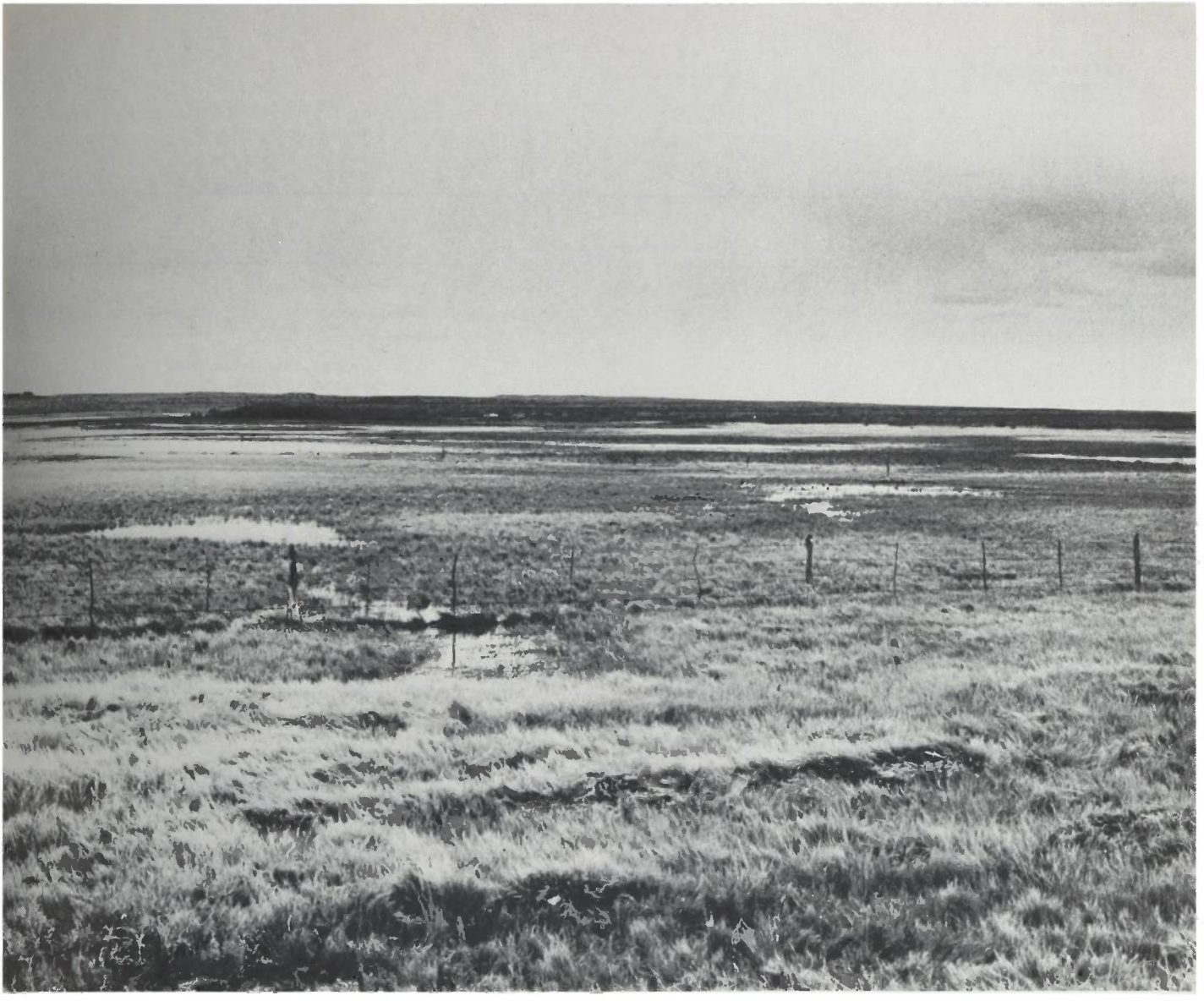

Figure 162. *Interior marsh within Great Basin desertscrub. Except for small patches of Saltcedar* (Tamarix chinensis; *dark group in left center background), Saltgrass* (Distichlis stricta) *almost exclusively dominated this now-drained wetland (Obed Meadows) south of Saint Johns, Apache County, Arizona. Elevation ca. 2,000 m. This cosmopolitan halophyte constitutes the principal vegetation of many alkali wetlands in the Southwest from sea level to more than 2,150 m.*

considered noxious; e.g., Green Sunfish (*Lepomis cyanellus*) and Golden Shiner, and predators such as Northern Pike (*Esox lucius*). The last species may exert pressure on young of nesting waterfowl, and will certainly have an undesirable impact on other native aquatic animals if it becomes established in streams.