

Habitat use and nesting success of least terns along the Platte River, Nebraska

Eileen M. Kirsch

U.S. Fish and Wildlife Service, Northern Prairie WRC, P.O. Box 2226, La Crosse, WI 54602

Gary R. Lingle

Platte River Whooping Crane Trust, 2550 N. Diers Ave. Grand Island, NE 68803

Abstract: We compared least tern nesting success and distributions of terns on two habitats from 1987 to 1990 within two distinct hydrological reaches of the Platte River, NE. Terns nested on barren riverine sandbars or sand pit areas created by sand mining operations adjacent to the river.

The number of terns nesting on both habitats was determined during simultaneous surveys of both habitats. Nesting success was monitored at all nesting sites along the central Platte (river miles 250-175) (Lingle 1988, 1989, 1990). However, because of the larger numbers of nesting sites and birds along the lower Platte (river miles 102-0), nesting success was monitored at 40 sample colonies (Kirsch 1992).

Riverine habitat hosted 68% (n=1,816) of the terns on the lower Platte but only 22% (n=738) of the terns on the central Platte. Nest success (apparent nest success, see Johnson and Schaffer 1990) on riverine sites was 51% (n=340) on the lower Platte, vs. 32% (n=38) on the central Platte, while nest success on sandpits was 64% (318) on the lower Platte and 58% (308) on the central Platte.

Predation accounted for most nests lost on lower and central Platte spoil sites, and flooding accounted for most nests lost on lower and central Platte sandbars.

Odessa gauge hydrographs from the central Platte (1987-1990) for May through August illustrated that flows regularly inundated nests or caused fish kills. Nests and chicks were typically inundated when flows reached 2,000 to 3,000 cubic feet per second (cfs), and fish kills occurred at flows below 100-200 cfs.

Hydrographs from the lower Platte (North Bend gauge) for this same period revealed that nests were inundated only when flows were greater than 6,000 cfs and flows that cause fish kills did not occur.

In 1990, high flows during May and early June on the lower Platte prevented many terns from nesting on sandbars and resulted in fewer terns nesting on lower Platte sandbars that year. Inundation of nests during mid-June and late July 1990 also reduced nesting success on lower Platte sandbars that year. Conversely, flows in the central Platte in 1990 were well below 400 cfs from June until mid-August. Hence, fish kill

occurred but no nests were inundated on the central Platte.

From 1987-1989, nest success on lower Platte sandbars was very similar to that on sand pits, and predation was the main cause for nest loss on both habitats.

Sandbar habitat is severely degraded on the central Platte because flows that scour vegetation from sandbars and create high sandbars rarely occur (Williams 1978, O'Brien and Currier 1987, Ziewitz *et al* 1992). The only available sandbar habitat on the central Platte is of low elevation and readily flooded. Riverine habitat along the central Platte is virtually unsuitable for nesting terns without intensive management such as creating elevated artificial sandbars. However, the central reach of the Platte River is important for tern foraging and pre-migratory congregations.

Literature cited

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