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## Contact Zone of the Eastern and Western Marsh Wrens in Nebraska Revisited

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Across the northern and coastal United States and southern central Canada the Marsh Wren (*Cistothorus palustris*) is a widespread breeder in cattail-dominated marshes. Although it has long been considered to be polytypic based on subtle plumage characters (Parkes 1959; Phillips 1986), it was not until Kroodsma (1989, 2005) demonstrated that there was a dramatic break in the primary (song) vocalization in the northern Great Plains that anyone suggested more than one species was involved. In 1986, as part of the delineation of the breeding distribution of both vocal types, Kroodsma (1988; see map therein) audio recorded wrens at nine localities in Nebraska. He determined that breeding eastern (*Cistothorus p. palustris*) birds are primarily restricted to the northeastern corner of the state, whereas westerns (*C. p. paludicola*) were found in the western two-thirds of the state north of the Platte River. He found no wrens in an approximate 100 km wide corridor, although at two localities he found both song types (hereafter referred to as Eastern and Western subspecies; based on upcoming genetic work it will soon be recommended that these be elevated to species level; K. Barker, Robbins et al.). Twenty-five years later, in early June 2011, I reassessed the distribution of breeding Marsh Wrens in Nebraska.

### Methods

Using Kroodsma's (1988) 1986 data as a reference for sampling, I visited ca. 30 sites in roughly the eastern two-thirds of the state during early June 2011, with a few selected sites revisited in June 2014. With the exception of two sites, Crystal Cove Park, Dakota County (#13, Fig. 1) and Ericson Lake, Wheeler County (#6, Fig. 1), I surveyed all localities where Kroodsma recorded wrens, as well as a number of other areas (Fig. 1). At all but the Cherry County sites, I played prerecorded songs of both subspecies to elicit vocal responses. Audio recordings and voucher specimens were obtained for selected individuals, deposited at the Macaulay Library, Cornell Laboratory of Ornithology, Ithaca, New York (accessible online) and the University of Kansas Biodiversity Institute (accessible online via VertNet), respectively. Except where noted, the following localities where I recorded wrens are depicted in figure 1: 1) Valentine National Wildlife Refuge; 2) Ballards Marsh State Wildlife Management Area (SWMA); 3) Pony Lake; 4) Doolittle (=Overton) Lake; 5) Swan Lake; 6) Erickson Lake (see above); 7) Goose Lake SWMA; 8) private marsh along Elkhorn River between Ewing and Clearwater; 9) private marsh just north of Ashfall Fossil Beds State Historical Park; 10) west of Niobrara in

Missouri River floodplain; 11) northern edge of Niobrara; 12) Wood Duck SWMA; 13) Crystal Cove Park (see above).

### Results and Discussion

My 2011 and 2014 surveys determined that the breeding distribution of the two subspecies has not changed in the subsequent 25 years since Kroodsmas's 1986 assessment (Fig. 1). I did not find both subspecies at the two sites, Pony Lake (# 3, Fig. 1) and Doolittle (=Overton) Lake (# 4, Fig. 1) where Kroodsmas (1988) had single Easterns at each lake among a total of 80 Westerns. I found only Westerns present at Pony Lake, and there was no appropriate wren habitat at Doolittle in 2011. However, to the east in 2011, I did record and collect at least 3 territorial Easterns among at least 22 territorial Westerns at Goose Lake SWMA, Holt County (solid star; Fig. 1). Genetic data on these samples will be published elsewhere (K. Barker, Robbins et al.). At this same site on 17 June 2014, only Westerns (n=33 territorial males) were recorded. This was the only site where I found both subspecies. In addition to the above variation between 2011 and 2014, at the northwestern corner of the Antelope County site (#9, Fig. 1), I recorded two pairs of Easterns in 2011, although none were present in June 2014 despite seemingly appropriate breeding conditions. There were a number of other sites that had prime breeding habitat (tall cattails, appropriate water levels), but no wrens (denoted with "x" in Fig 1). Thus as Kroodsmas noted, there appears to be very little contact between these two subspecies in Nebraska.

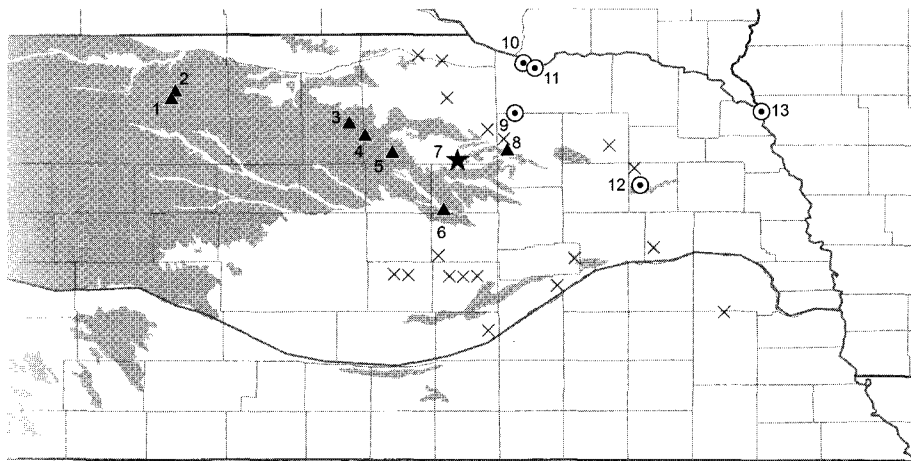


Fig. 1. Map of Eastern (circles) and Western (solid triangles) Marsh Wren breeding localities during June 2011 survey. Sites #6 and #13 were sampled only in the 1986 Kroodsmas survey. Gray area represents the Sandhill landform. Solid star indicates the only locality, Goose Lake SWMA, where both were together. "X" indicates localities where no wrens were present. Details for locality numbers are in Methods.

Interestingly, the Western Marsh Wren's breeding distribution in Nebraska appears closely correlated with the Sandhills landform (gray area, Fig. 1), whereas that of the Eastern is primarily along the upper Missouri River floodplain. Complicating the generalization of the Eastern breeding distribution is the southward movement of wrens from mid-July through August where that subspecies reaches northeastern Kansas, southern Iowa, and northern Missouri to breed again (Robbins, unpubl. data). For example, although in 1986 Kroodsma (1988) recorded Eastern Marsh Wren at Wood Duck SWMA (#12, Fig. 1), the area lacked appropriate habitat during my 1 June 2011 visit. Nonetheless, two wrens were noted there in August 2011 (D. Heidt, pers. comm.). Moreover, despite seemingly appropriate habitat at Jack Sinn SWMA, Saunders/Lancaster Cos., I failed to find any wrens there in June 2011; however, T. Labeledz found small numbers at this area in August 2011 and in subsequent years during the same period. Thus, at least in the extreme eastern part of Nebraska there appears to be a movement of wrens during the mid-July/August period as has been noted elsewhere (Robbins, unpubl. data).

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