



Status: Special concern

Global and State Ranks: G5/S3

Family: Parulidae

Total Range: The breeding range of the Prothonotary Warbler (*Protonotaria citrea*) includes wet, bottomland forests across the southeastern United States, from eastern Minnesota eastward to New Jersey, and south to east-central Texas and central Florida (Petit 1999). Wintering grounds primarily stretch across the coastal eastern Caribbean and northern South America, including Columbia and Venezuela, with fewer numbers extending west as far as southern Mexico (Dunn & Garrett 1997).

State Distribution: Mid 20th century accounts describe the Prothonotary Warbler as a common breeder along forested rivers throughout the southwestern Lower Peninsula (LP) of Michigan (Bent 1953), nesting as far north as Oceana County (Underdown 1931). Later, Michigan Breeding Bird Atlas (MBBA) records confirmed this largely southwestern LP breeding distribution, with several local declines therein, and only one confirmed breeding record in the eastern LP (Brewer et al. 1991). Recent breeding has been documented in eight LP counties: Allegan, Berrien,

Gratiot, Kalamazoo, Kent, Muskegon, Saginaw, and Van Buren (MBBAII unpublished data). The figure above identifies counties with confirmed breeding documented during Atlas surveys and from known occurrences from the Michigan Natural Features Inventory database.

Recognition: The Prothonotary Warbler was named after religious and legal clerks who sometimes wore a golden hood and a blue cape (Bent 1953). It is appropriately nicknamed the “golden swamp warbler;” a brilliant golden-yellow warbler averaging 5.5 inches in length and 16 g in weight (Sibley 2000). Black and Kennedy (2003) describe the Prothonotary Warbler as having “large, dark eyes; long bill; unmarked, yellow head; yellow undersides except for white undertail coverts; olive green back; unmarked bluish gray wings...” Another distinguishing characteristic is the extensive white spots on the tail. Upon close inspection, males possess an entirely blackish bill, while only the upper mandible of the female’s bill is black. Additionally females possess duller plumage overall. First-year birds appear similar to adults, but with more drab plumage and an entirely pale bill. Among adults, bill color is darker during the breeding season (March-July), otherwise paler (August-February) (Sibley 2000).

Sibley (2000) describes the song of the Prothonotary Warbler as high, clear and metallic; it consists of five to



twelve rising “tsweet” notes. Both sexes give call notes described phonetically as a clear, metallic squeak “tsiip” (Sibley 2000), or a dry, loud “chip” (Dunn & Garrett 1997), and during flight, or perched, may utter a “seep” sound (Dunn & Garrett 1997). In addition, but heard very rarely, is the flight song; it begins with the primary song, followed by an extended, varied warble (Roberts 1932 in Walkinshaw 1938).

Best Survey Time: Compared to other passerines, the Prothonotary Warbler is a relatively early migrant, arriving in Michigan as early as 30 April, and often departing by mid July (Walkinshaw 1938). The best time to survey Prothonotary Warbler is following arrival on breeding grounds; typically the first week of May in Michigan, and extending through the breeding season (Walkinshaw 1953). The male’s fervent song can be heard immediately upon arrival, especially during morning hours, and often continues after young have left the nest in July (Walkinshaw 1938).

Habitat: Prothonotary Warblers are the only eastern United States warbler to nest in cavities. High quality breeding habitat is characterized by the presence of dead snags and cavity trees within riparian corridors, wooded swamps, and bottomland hardwood forests near flowing or standing water (Bent 1953). Since old growth forests are more likely to contain cavity trees, loss of mature habitat poses a significant threat. Additionally, Bushman and Therres (1988) revealed a preference for dense streamside underbrush (in coastal Maryland). Primary wintering habitat includes wet lowland forests and mangroves, but may also include dryer inland sites (Dunn & Garrett 1997).

Biology: Much early knowledge of Prothonotary Warbler life history is owed to Walkinshaw (1938, 1941, 1953), who studied the species in Michigan and Tennessee. The Prothonotary Warbler is a relatively early migrant with males arriving first on breeding grounds (late April - mid May in Michigan) where they immediately establish territory by singing and vigorously chasing intruding conspecific males, and other species, including House Wren (*Troglodytes aedon*), Black-capped Chickadee (*Poecile atricapillus*), and Yellow Warbler (*Dendroica petechia*). During this time males also select a nest site (cavity) within their territory, often near, or even hanging over water, and deposit moss into the opening. Upon arrival, the paired female

deems the site acceptable, or chooses a new nest site (Walkinshaw 1941). Walkinshaw (1953) found territories of 14 Michigan pairs averaged 3.66 acres. Prothonotary Warblers are generally single-brooded in northern parts of their range (Michigan) and double-brooded to the south (Tennessee), and will breed with previous mates if not already paired for the season (Walkinshaw 1941). Nests are usually located somewhat low to the ground in natural or secondary tree cavities, and although preferring cavities excavated by Downy Woodpeckers (*Picoides pubescens*), this species will also take up residence in nest-boxes (Walkinshaw 1938; Baicich & Harrison 1997). Walkinshaw (1938) found mainly females build nest constructed of small twigs, moss, decayed leaves, and bark; lined with delicate grasses and rootlets. Typically, the female incubates 4-6 smooth, pale eggs with variable reddish-brown and purplish-gray spots for 12-14 days (Walkinshaw 1938; Baicich & Harrison 1997). Altricial young are tended by both adults, on average leaving the nest at 10-11 days of age, thereafter fed by adults for about two more weeks (Walkinshaw 1938). Reported causes of nest failure include predation, excessive heat, flooding, cowbird nest parasitism, and House Wrens, who destroy existing nests, thus seizing available nest sites (Walkinshaw 1938; Flaspohler 1996). Prey on breeding grounds consists largely of insects, caterpillars, beetles, spiders, snails, mayflies, etc., and may be similar on wintering grounds (Petit 1999). Primarily a nocturnal migrant (Stevenson & Anderson 1994), in Michigan, departure from breeding territories begins in July (Walkinshaw 1938, 1991). The longevity record for Prothonotary Warbler is 8+ yrs (Patuxent Wildlife Research Center 2006).

Conservation/Management: Songbird abundance in floodplain forests can be twice as high as upland forests and even small patches of floodplain forest in large river systems can supply important habitat for forest-nesting songbirds (Knutson et al. 1996). Conservation of small patches becomes especially important as more marginal land is converted to cropland due to the demand for grain for biofuels. Knutson et al. (1996) suggests conservation efforts focus on restoration of a variety of riparian forest types along small headwater streams and large continental riparian systems. Efforts should provide wide corridors which act as a refuge during floods and which reduce forest fragmentation and cowbird parasitism. In addition, restored areas should



offer high tree species diversity, dead trees and snags, and restored hydrological regimes, which are needed by species such as the Prothonotary Warbler, Louisiana Waterthrush (*Seiurus motacilla*), and Cerulean Warbler (*Dendroica cerulea*) (Knutson et al. 1996, 2001).

Research Needs: Hydrological changes due to dams, impoundments, and levees affect flood frequency and water depth, and may additionally alter tree and understory species composition, structure and distribution. Research is needed to understand and predict how bird communities respond to these hydrologically driven successional changes in floodplain forests (Knutson et al. 1996). With this understanding, changes in habitat availability and quality, and subsequent changes in cowbird parasitism levels could be predicted for riparian species such as Prothonotary Warbler and Louisiana Waterthrush.

Related Abstracts: Louisiana Waterthrush (*Seiurus motacilla*)

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