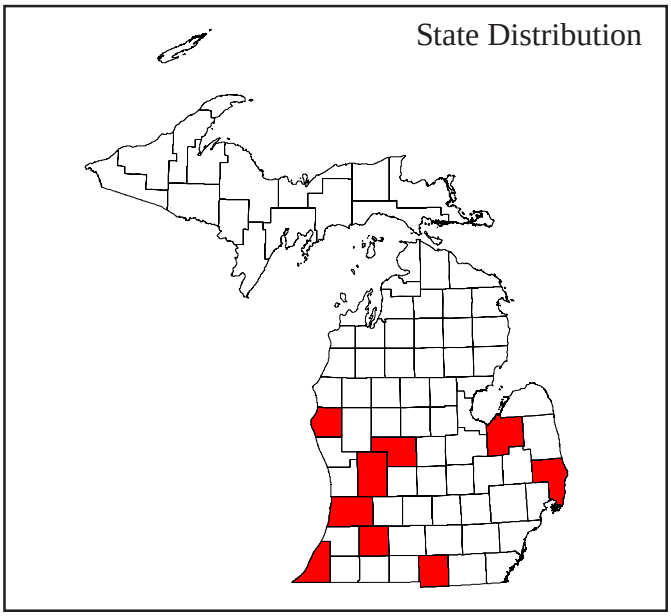
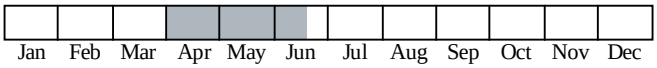
Seiurus motacilla Vieillot — Louisiana Waterthrush

Photo provided by The Otter Side



Best Survey Period



Status: State special concern

Global and State Ranks: G5, S2S3

Family: Parulidae

Total Range: The breeding range of the Louisiana Waterthrush (*Seiurus motacilla*) primarily spans the east-central and eastern U.S., from southeastern Minnesota eastward to southern Maine, and southward to eastern Texas and northwestern Florida (Robinson 1995). Louisiana Waterthrush has been extending its range northward in some parts of the northeastern U.S. (Robinson 1995), which, due to reforestation over the last half century, may also be the case in Michigan (Hull 1991). This species winters primarily in mountainous areas of Mexico, south through Central America to central Panama, as well as parts of the Caribbean (Robinson 1995).

State Distribution: Early 20th century accounts describe Louisiana Waterthrush as common throughout the southern Lower Peninsula (LP) (Cook 1893; Barrows 1912), south of the tension zone that separates the northern and southern LP. Later, Hull (1991) described Louisiana Waterthrush as an uncommon species, sparsely distributed across Lower Michigan, with suspected declines caused by several factors including deforestation and riparian development. Michigan Breeding Bird Atlas (MBBA) records collected from 1983-1988 documented 68 atlas blocks (each block encompasses nine square miles) containing Louisiana Waterthrush, and although the northernmost blocks are situated within Wexford County, the majority of blocks are located in the southern LP (Brewer et al. 1991). Recent breeding has been documented in the southwestern LP in four counties: Allegan, Barry, Muskegon, and Oceana, additionally, several singing males have been noted in Berrien Co. (MBBAII unpublished data). The figure above identifies counties with confirmed breeding during Atlas surveys and from known occurrences from the Michigan Natural Features Inventory database.

Recognition: The Louisiana Waterthrush is a large, brownish wood warbler averaging six inches in length and 20.5 g in weight (Sibley 2000). It tends to sway from side to side while characteristically bobbing its tail (and head) up and down as it walks (Sibley 2000; Black & Kennedy 2003), in fact, both the Louisiana Waterthrush genus and species name mean “tail-wagger” (Robinson 1995). Although having a dissimilar song, the Northern Waterthrush (*Seiurus noveboracensis*) is also a tail-wagger, and by appearance is often confused with Louisiana Waterthrush; both are “rather long bodied, with narrow

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heads, short tails, and long legs" (Sibley 2000). Black and Kennedy (2003) describe adult Louisiana Waterthrush as having "brownish upperparts, long bill, pink legs, white underparts with buff orange wash on flanks, long, dark streaks on breast and sides, a bicolored buff and white eyebrow, and clean white throat." Upon close inspection, Louisiana Waterthrush are bulkier, have longer bill, heavier body, broader white supercilium (eyebrow), and sparser streaking across breast, compared to Northern Waterthrush (Sibley 2000).

Sibley (2000) describes the song of the Louisiana Waterthrush as musical, clear and sweet; it begins with three or four high, clear notes followed by a series of jumbled, descending chips and chirps. Both sexes give call notes described phonetically as a loud, strong "spich" (Sibley 2000), "chick", or "chink" (Black & Kennedy 2003), and during courtship both utter a "zizzing" sound, which can also be used by males during territorial chases (Eaton 1958). The less frequently heard dusk flight song is characterized by an extended introduction of chipping and twittering as the male ascends high into the air with exaggerated wingbeats. He then quickly sings his traditional song before plunging to the ground. (Eaton 1958).

Best Survey Time: Compared to other passerines, the Louisiana Waterthrush is a relatively early migrant (often the first warbler species to arrive), detected in New York as early as 11 April (Eaton 1958), and in Michigan: 28 March (Kelley 1983). The best time to survey for Louisiana Waterthrush is immediately following arrival on breeding grounds in spring, when the male's fervent song is easily heard over a background of running water (Eaton 1958). This survey window is brief; once a mate is obtained the frequency of the male's vocalizations abruptly declines (Craig 1981).

Habitat: The Louisiana Waterthrush is a riparian obligate species, with high quality breeding habitat characterized by the presence of fast-flowing streams (Bent 1953; Eaton 1958) within contiguous, deciduous, and often hilly forests containing moderate to sparse undergrowth (Eaton 1958), the former allowing for streambank nesting and acquisition of prey (aquatic insects and invertebrates). Correspondingly, habitat modeling by Prosser and Brooks (1998) reveal a preference for unpolluted, high quality headwater streams within unfragmented forests. At the northern limit of their range in Michigan, some habitat overlap occurs with congener, Northern Waterthrush, which is more often found in conifer dominated forests, with greater vegetation density (Craig 1985), and near slower running or stagnant water (Bent 1953; Craig 1985).

The Louisiana Waterthrush migratory route is broad across the eastern U.S. in spring and slightly more easterly in fall (Dunn & Garrett 1997). Wintering grounds include much of Mexico, Central America, Panama, and the Caribbean (Robinson 1995). Master et al. (2005) found a high concentration of wintering Louisiana Waterthrush in Costa Rica using habitat similar to high quality breeding habitat.

Biology: The longest known living Louisiana Waterthrush was recaptured after 11 yrs (Patuxent Wildlife Research Center), while little information is available on survivorship. Although females exhibit high nest site fidelity (Mulvihill et al. 2002), adult males are usually first to arrive on breeding grounds, where they zealously sing throughout the day(s) until a mate is obtained (Eaton 1958). Territories are linear, following stream corridor, and average 400 m, 358m, and 930m in length in New York, Connecticut, and Illinois, respectively (Eaton 1958; Craig 1981; Robinson 1995). Courtship behavior includes displays and "zizz" vocalizations, sometimes followed by copulation, and finally, nest site selection, which the female must deem acceptable (Eaton 1958). Nests are located along stream banks, ravines, or in a crevice among the roots of an upturned tree (Bent 1953; Baicich & Harrison 1997). Both sexes build nest constructed of moss, leaves, grasses and rootlets, which is situated on a thick base of leaves, and the female incubates 4-6 eggs (Bent 1953; Eaton 1958) for 12-14 days (Eaton 1958). Although rare observations of polygyny exist (Mulvihill et al. 2002), Louisiana Waterthrush are monogamous and single brooded, laying smooth and glossy, white or creamy-white eggs with variable brownish and purplish colored spots (Baicich & Harrison 1997). Brown-headed Cowbird (*Molothrus ater*) nest parasitism is common (Bent 1953); Louisiana Waterthrush often accept the similar looking cowbird egg(s). Altricial young are tended by both adults, typically taking their first flight at 10 days of age (Bent 1953; Eaton 1958),

they continue to be fed (by adults) outside the nest for approximately four more weeks (Eaton 1958). Prey consists primarily of aquatic invertebrates, but may also include terrestrial insects, as well as amphibians and snails on wintering grounds (Eaton 1958). In Michigan, migratory departure from breeding territories begins in July (Kelly 1978).

Conservation/Management: The deforestation following settlement was responsible for significant population declines; now an uncommon species with local concentrations (Brewer et al. 1991), the Louisiana Waterthrush is listed as a Michigan species of special concern. It is threatened by forest fragmentation and activities that cause reductions in forest canopy cover or that negatively impact aquatic insect communities (Hanowski et al. 1998). Management efforts that increase riparian forest and maintain or improve water quality may include tree planting in riparian areas with high rates of canopy loss to restore riparian zone width and connectivity, planting grass filter strips along agricultural drainages to reduce sedimentation and pollution runoff, converting agricultural lands to no-tillage practices, and general restoration of land adjacent riparian zones (Michigan Department of Natural Resources 2007). Consequently, large contiguous tracts of floodplain and adjoining upland forests, in addition to undisturbed and unimproved streams, have been shown to reduce cowbird parasitism and to provide high quality habitat for this and other neotropical migratory birds (Hanowski et al.1998). Moreover, recent studies of its reproductive and foraging ecology have demonstrated Louisiana Waterthrush is a useful bioindicator of stressors on forested headwater streams (Mulvihill 1999; O'Connell et al. 2003).

Research Needs: To accurately determine Louisiana Waterthrush abundance and distribution, additional survey effort is required, since most Breeding Bird Surveys are conducted after this species stops singing (Robinson 1995). Additionally, hydrological changes due to damns, impoundments, and levees affect flood frequency and water depth, and alter tree and understory species composition and structure. Consequently, research is needed to understand and predict how this species responds 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 Louisiana Waterthrush and Prothonotary Warbler (*Protonotaria citrea*). Finally, Robinson (1995) listed several priorities for Louisiana Waterthrush research, including examining habitat use, behavior and population ecology on wintering grounds. Master et al. (2005) stressed the importance of high quality wintering habitat for this riparian specialist, while reiterating the need for more information in order to implement conservation strategies.

Related Abstracts: Prothonotary Warbler (*Protonotaria citrea*)

Selected References:

Baicich, P. J., and C. J. O. Harrison. 1997. A guide to the nests, eggs and nestlings of North American birds. Second edition. Academic Press, New York, NY.

Barrows, W. B. 1912. Michigan Bird Life. Agricultural College Special Bulletin. East Lansing, MI.

Bent, A. C. 1953. Life Histories of North American Wood Warblers. United States National Museum Bulletin 203.

Brewer, R., G. A. McPeek, and R. J. Adams Jr., editors. 1991. The Atlas of Breeding Birds of Michigan. Michigan State University Press, East Lansing, MI.

Black, T. and G. Kennedy. 2003. Birds of Michigan. Lone Pine Publishing. Auburn, WA.

Cook, A. J. 1893. Birds of Michigan. Second Edition. East Lansing, Michigan State College Agricultural Experiment Station Bulletin No. 94.

Craig, R. J. 1981. Comparative ecology of the Louisiana and Northern Waterthrushes. PhD thesis, University of Connecticut, Storrs, CT.

Craig, R. J. 1985. Comparative habitat use by Louisiana and Northern Waterthrushes. Wilson Bulletin 97:347-355.

Dunn, J. L. and K. L. Garrett. 1997. A Field Guide to Warblers of North America. Peterson Field Guides.

Eaton, S. W. 1958. A life history of the Louisiana Waterthrush. Wilson Bulletin 70:211-236.

Hanowski, J. M., J. N. Gerald, R. Y. Hawrot and P. T. Wolter. 1998. Wildlife species: responses to forest harvesting and management in riparian stands and landscapes. NRRI Technical Report Number: NRRI/TR-98/27. Minnesota Forest Resources Council, St. Paul, MN.

Hull, C. N. 1991. Species account for Louisiana Waterthrush (*Seiurus motacilla*). Pages 438-439 in The Atlas of Breeding Birds of Michigan. Brewer, R., G. A. McPeek, and R. J. Adams Jr., editors. Michigan State University Press, East Lansing, MI.

Kelley, A. H. 1978. Birds of southeastern Michigan and southwestern Ontario. Bloomfield Hills, Michigan, Cranbrook Institute of Science.

Kelley, A. H. 1983. Birds of S.E. Michigan and S.W. Ontario- notes on the years 1975-1981. Jack-Pine Warbler 61:3-12.

Knutson, M. G., J. P. Hoover, and E. E. Klaas. 1996. The importance of floodplain forests in the conservation and management of neotropical migratory birds in the Midwest. Pages 168-188 in Management of midwestern landscapes for the conservation of neotropical migratory birds (F R. Thompson, Ed.). U. S. Forest Service General Technical Report NC-187, St. Paul, MN.

Master, T. L., R. S. Mulvihill, R. C. Leberman, J. Sanchez, and E. Carman. 2005. A preliminary study of riparian songbirds in Costa Rica, with emphasis on wintering Louisiana Waterthrushes. USDA Forest Service General technical report PSW-GTR-191.

Michigan Department of Natural Resources Publication; Hunting and Wildlife Habitat Landowner Incentive Program Master Species List. Available at http://www.michigandnr.com/publications/pdfs/HuntingWildlifeHabitat/LIPMasterSpeciesList.pdf (accessed February 2007).

Mulvihill, R. S., A. Cunkelman, L. Quattrini, T. J. O'Connell, and T. L. Master. 2002. Opportunistic polygyny in the Louisiana Waterthrush. Wilson Bulletin 114:106-113.

Patuxent Wildlife Research Center. Species longevity records. Available at http://www.pwrc.usgs.gov/bbl/homepage/long5930.htm (accessed February 2007).

Prosser, D. J. and R. P. Brooks.1998. A verified habitat suitability index (HSI) for the Louisiana Waterthrush. Journal of Field Ornithology 69:288-298.

Robinson, W.D. 1995. Louisiana Waterthrush. Number 151 in A. Poole, and F. Gill, editors. The Birds of North America.

Sibley, D. A. 2000. National Audubon Society The Sibley Guide to Birds. Alfred A. Knopf, New York, NY.

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