

ESTABLISHMENT AND SPREAD OF THE SCALY-BREASTED MUNIA (*LONGHURA PUNCTULATA*) IN MISSISSIPPI

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OVERVIEW

The Scaly-breasted Munia (*Lonchura punctulata*), also known as Nutmeg Mannikin or Spice Finch in the pet trade, is a finch (Estrildidae) species native to Asia. Due to its popularity in the pet trade, and its ability to naturalize post-release, it has become well established in numerous locations outside its native range (eBird 2018). In the United States, there are established populations in Hawaii, California, Texas, Florida, and less extensive populations in a few other states (eBird 2018). Reports of the species have increased in southern Mississippi in recent years (eBird 2018). The purposes of this paper are to summarize the history of its occurrence in Mississippi, and report some observations on its life history in this non-native part of its range. We utilized eBird reports, miscellaneous sightings reported to the Mississippi Bird Records Committee and on social media, and detailed field observations by one of us (Epps).

Scaly-breasted Munias were first reported from Mississippi during November 2010 at Diamondhead in eastern Hancock County, and have since been consistently reported from Diamondhead. Three years passed before another report came from elsewhere in Mississippi, when reports started coming from Jackson and eastern Harrison counties. No reports came from outside of Diamondhead during 2015. Munias were reported from

Long Beach in western Harrison County, not far from Diamondhead, during 2016. Reports became more widespread in 2017 and 2018, including multiple locations from Jackson and Harrison counties, a report from as far north as Jones County, and additional reports from just outside the Diamondhead area in eastern Hancock and western Harrison counties.

INITIAL ESTABLISHMENT IN HANCOCK COUNTY

Scaly-breasted Munias were first reported from Mississippi by Jason Pyron during November 2010 in the community of Diamondhead, which is located just inland from Bay Saint Louis in Hancock County, the westernmost county in Mississippi on the Gulf of Mexico coast. The source of these birds is unknown. Epps determined that the individuals seen at Diamondhead belonged to the subspecies *L. p. punctulata*, native to Pakistan, India, and Sri Lanka. This is the only form with orange uppertail-coverts and pure black and white scaly markings on the breast and flanks (Restall 1997), and is apparently the most popular in the pet trade (Lang 2007). On 9 December 2011, Epps observed that the PetSmart pet store in Gulfport had several of this same subspecies on sale for \$19.79 each. At the time the first birds were found at Diamondhead, the species had been breeding in the western panhandle of Florida for at least 10 years (Duncan and Duncan 2018), and had been sighted in coastal Alabama for the first time in 2007 (Kittle et al. 2008). More than 300 miles west, in Houston, Texas, Scaly-breasted Munia sightings began as early as 2004 (Conn et al. 2017). In Houston, large numbers of Scaly-breasted Munias were sometimes released at Asian weddings rather than throwing rice (Collins 2015, Conn et al. 2017). The source of the Mississippi birds is unknown, but may have resulted from a similar release, or they may have spread from populations in neighboring states.

Following the initial detection at Diamondhead, munias apparently began to breed and spread in that immediate area. In 2011, there were several reports from different points around the Diamondhead neighborhood, which included juvenile birds. For example, on 8 December, Epps observed an adult and two juveniles at her feeder. Pyron had 15 at a feeder on 17 December, including 12 juveniles. Through 2014, flocks of more than 10 (Figure 1), then later more than 20, became more common. Epps observed a high count of more than 50 at her feeder during August 2012, followed by a new high of over 100 on 1 October 2014. Flocks were usually dominated by non-adult birds, indicating continued breeding.



Figure 1. Juvenile and adult Scaly-breasted Munias visiting bird feeders at Diamondhead (Hancock Co.), Mississippi, September 2012. Photograph by Susan Epps.

REPORTS IN MISSISSIPPI AWAY FROM DIAMONDHEAD

In 2013 and 2014, observations began to come from Mississippi coastal sites east of Diamondhead. The first report from Mississippi outside of Diamondhead was a single juvenile photographed by Judy Wilder at her feeder on Seaman Road near Vancleave in Jackson County on 25 November 2013. Margaret McCrary observed six individuals (and photographed an adult) on 24 April 2014 at her feeders near Bayou Bernard near Gulfport in Harrison County. On 12 November 2014, Christine Kelley reported one juvenile at her feeder on Dale Lane near Moss Point in Jackson County. Aside from Diamondhead, no further reports of munias were made during 2015.

During 2016, reports of munias began to come from approximately 10 miles east-southeast of Diamondhead at Long Beach in western Harrison County, suggesting potential direct spread from the Diamondhead population. Frank Reed began seeing munias at his Long Beach home near the Mississippi Sound during spring 2016, including flocks of at least 50 and a permanent pair. Beginning in 2017, sightings of Scaly-breasted Munias appeared more frequently along the Mississippi Coast at multiple locations in both Harrison and Jackson counties, including one observation much farther north. June Ladner, Holly Cox, and Rhonda Plitt observed two adults feeding three to four recently-fledged juveniles in a black gum (*Nyssa sylvatica*) tree on 5 and 9 September 2017 at Reunion Place at Biloxi, just north of Back Bay. Sheila Murphy photographed two juveniles on 9 November 2017 across the bay at Biloxi's Hiller Park. Billy Hauer photographed two juveniles at a feeder on 23 December 2017 in the Hunters Chase neighborhood at Gulfport, well north of the previous Harrison County sightings. The only report to date away from the Coast was of a single bird photographed by Jan Dykes in a pasture at the Big Creek community in northwest Jones County

during November 2017. Beginning on 28 December 2017, and ending on 7 June 2018, Brian Johnston documented a single munia visiting a feeder in his yard at Pascagoula. Elsewhere in Jackson County, Suzanne Schneidau observed a group of up to six muniias (including some juveniles) visiting her feeders between March and May, 2018, at El Bonito Drive in north Ocean Springs. JoMarie Favre LeBlanc reported a flock of more than 30 individuals at Long Beach during early November 2018. Lori McDonald photographed a juvenile near Bayou DeLisle at Pass Christian on 30 November 2018. Katy Criswell reported a single bird from Long Beach on 14 December 2018, and Aaron Mitchell and William McFarland reported a single munia foraging in roadside grass with a Song Sparrow (*Melospiza melodia*) at Washington Street Pier in southeastern Hancock County three days later.

OBSERVATIONS ON BREEDING, MOLT, AND FEEDING

Epps' detailed observations at her yard at Diamondhead suggest that Scaly-breasted Muniias commence breeding each year during late April and May, with possible additional broods later in the summer. For example, in 2013, the first young of the year appeared at her feeders on 29 May; in 2014, the first fledglings appeared on 11 June. On 23 August 2013, Epps observed 28 juveniles with apparent fresh juvenile plumage at her feeders, suggesting they belonged to one or more late-summer broods. Epps found two unoccupied munia nests at Diamondhead during the month of August. On 2 August 2013, a woven nest of grass was found on the ground (Figure 2A). On 1 August 2014, a similar nest was photographed in a crape myrtle (*Lagerstroemia* sp.; Figure 2B).

Regarding molt progression, scales often began to appear on the underpart feathers of 1st-year birds during October. By March, the young of the previous summer had typically acquired



Figure 2. Woven nests built by Scaly-breasted Munias at Diamondhead (Hancock Co.), Mississippi. (A) Fallen on the ground 2 August 2013, and (B) in a crape myrtle tree 1 August 2014. Photographs by Susan Epps.

some scaling on their underparts, with some being completely scaled, although all still typically lacked chestnut on the face. The 1st-winter bird visiting the Johnston yard at Pascagoula during 2017-2018 (mentioned above) molted from partially-scaled during late December into apparent full adult plumage by June, with much of the transition happening rapidly during April and May (photographs can be seen in a series of eBird checklists documenting this individual, beginning here: <https://ebird.org/view/checklist/S41382077>). Epps documented at least one individual that apparently fledged during June 2013 with noticeably grayer plumage than all other individuals she had observed. Later that summer, another unusually gray individual appeared, possibly a different bird based on its apparent molt progression (Figure 3).

At feeders, munias seemed to prefer white millet. However, Epps' observations also determined that the munias at



Figure 3. Scaly-breasted Munia with plumage much grayer than average, at Diamondhead (Hancock Co.), Mississippi, late August 2013. Photograph by Susan Epps.

Diamondhead utilized a wide variety of wild foods, not just seed from feeders. A frequent food source was the seeds of panic grass (*Panicum* spp.), which is also an important food source in their native range (Restall 1997). Other grass seeds observed to be eaten included centipede grass (*Eremochloa ophiuroides*) in yards that had not been recently mowed, rye grass (*Lolium* spp.), and pampas grass (*Cortaderia* spp.). Munias also fed on the seeds of swamp titi (*Cyrilla racemiflora*), the ripening berries in August and September of wax myrtle (*Myrica cerifera*), and the flowers or fruits of Chinese tallow (*Triadica sebifera*). Other vegetative parts

consumed included (commonly) the buds of longleaf pine (*Pinus palustris*) and gardenia (*Gardenia* spp.), and the leaves of dog fennel (*Eupatorium capillifolium*).

Munias are considered pests on cultivated rice and other crops in parts of their native range, and were considered a rice and sorghum pest in Hawaii before these crops became less frequently-grown there (Long 1981). These crops are mostly grown farther north in Mississippi where munias are currently absent; an economic impact seems unlikely at this time.

CONCLUSIONS

The Scaly-breasted Munia appears to have established in coastal Mississippi, and has successfully bred there since at least 2011. It appears to have bred in multiple locations in recent years, as evidenced by the wide-ranging presence of recently-fledged birds, and has even been observed much farther north in Jones County. Its progress should continue to be monitored, and then should be summarized again after 2025. If still effectively naturalized after 2025, it will have been present and breeding for at least 15 years. This is one of eight criteria used by American Birding Association's Checklist Committee for determining establishment of exotic bird species (<http://listing.aba.org/criteria-determining-establishment-exotics/>). Currently the only states with Scaly-breasted Munias on their official state bird lists are Hawaii and California, although it would not be surprising to see them added in Texas or Florida in the near future.

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