

McNabney Marsh
2013 Nesting Bird Surveys



Photograph by K. Davidson, MVSD

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Introduction

In cooperation with the Peyton Slough Wetlands Advisory Committee (PSWAC), the Mt. View Sanitary District (MVSD) requested that a 3rd year nesting bird survey be conducted in McNabney Marsh during the 2013 breeding season. The survey was intended to collect data on nesting species to compare with data collected in 2002–2004, 2011 and 2012. The 2013 survey is the third year of annual surveys documenting nesting bird activity during the “implementation phase” of a proposed tide gate management program for a 5-gate water control structure on Peyton Slough. Although the tide gate is operated by Solvay Chemicals (formerly known as Rhodia Inc.) the management plan/operations-schedule is a cooperative effort between MVSD, Solvay, and the PSWAC to better manage McNabney Marsh for nesting bird success.

Because of a severe constriction on Peyton Slough, at a Union Pacific Railroad (UPRR) bridge box culvert, McNabney Marsh does not experience typical tidal action for the San Francisco Bay. The UPRR constriction allows a high volume of water from the Carquinez Strait to fill the marsh during high tides, but only a fraction of the volume drains out during low tides. The lack of drainage “pumps up” water levels in the marsh. This unnatural “pumping up” effect creates unusual challenges for ground nesting species that have depended upon McNabney Marsh for nesting habitat for decades.

Mt. View Sanitary District is aware of these challenges, and in an effort to increase benefits to nesting birds, constructed and deployed 12 floating nesting rafts with a variety of substrates (vegetation and sand) to attract nesting waterfowl and shorebirds in early March 2013, bringing the total number of rafts to 20. Additional temporary habitat enhancements included utilizing cut vegetation to create nesting mounds on several islands in McNabney Marsh to help increase nest elevation, which could prevent potential flooding from tide gate operations.

As in 2012, MVSD continued to work with Solvay to manipulate water levels in February and March to encourage ground nesting species to nest at higher elevations. In January 2013, Solvay requested a minimum and maximum water level from MVSD that would facilitate nesting success. This data was not immediately available. Using the staff gage at the East Channel in McNabney Marsh, MVSD’s District Biologist monitored water levels for several weeks and suggested that levels between 1.8’ and 2.3’. It was noted at the time that levels above 2.8’ flooded Waterfront Road and other infrastructure. The staff gage numbers reported here have not been correlated to any known elevation metric and are simply treated as relative levels.

METHODOLOGY

The Wildlife Project initiated survey efforts during year 3 of a multi-year nesting bird survey in McNabney Marsh. This work included studying previous nesting bird data provided by MVSD (i.e., 2002–2004, and 2011 and 2012), and conducting field surveys for nesting activity

throughout McNabney Marsh in 2013.

We continued to use three pre-established transects and four observation points in order to create repeatable data collection locations that could be compared over time. Transects were located along the northern, eastern, and southern shoreline borders of the marsh (Figure 1). Observation points were located in similar areas, where a spotting scope was used to scan larger areas for nesting birds, and breeding and nesting behavior.

Surveys began in March 2013 and were conducted every other week through July 22th, 2012. Transects and observation points were organized such that all data could be collected before noon of each survey day. Surveyors typically walked transects while collecting data on birds observed, nests observed, nesting activity, chicks hatched, chicks fledged, etc. Counts at observation points were typically conducted in conjunction with the associated transects. All nesting birds observed were identified to species and mapped on aerial photos.

It was believed that most or all detected ground nests would be free from flooding and destruction if water levels did not exceed 2.3 feet. The staff gauge was checked once or twice daily and report by MVSD via email. Upon reporting, a recommendation for gate adjustment was usually offered.

RESULTS

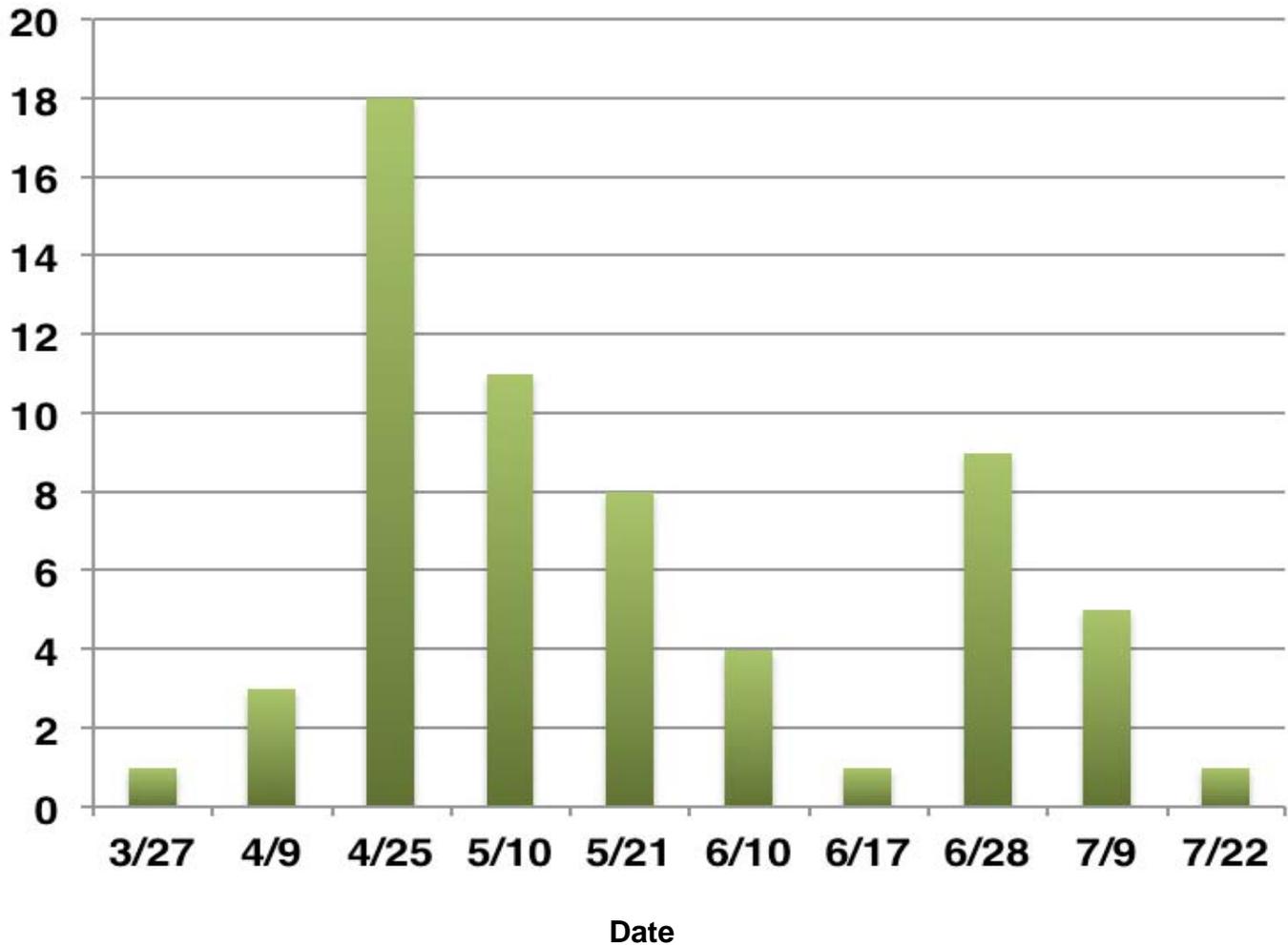
Field surveys began after the first detected nest was reported. Transects surveys were conducted from 27 MAR to 22 JUL 2013, resulting in an average of 22 species observed per survey (range = 19–26). Total numbers of individual birds ranged from 166 to 592 (mean = 306.5/survey). Nesting was initially observed on 27 MAR 2013, with Mallard being the earliest nesting species observed. Nesting activity peaked in late April (18 active nests), after which observed nesting declined to one nest (Figure 2). A second peak occurred in late June with 9 nests detected during single visit. Numerous species were observed nesting during the 2013-nesting season, including: Canada Goose, Mallard, Gadwall, Cinnamon Teal, Killdeer, Black-necked Stilt, American Avocet, Marsh Wren, Black Phoebe, San Francisco Common Yellow-throat, Savannah Sparrow, Suisun Song Sparrow, Great-tailed Grackle, and Red-winged Blackbird.

The first observed chicks were recorded on 10 MAY (Canada Goose) and the last chicks observed were on June 8th (Gadwall, Black-necked Stilt, Suisun Song Sparrow). At least 12 chicks reached the fledgling stage during the 2013 survey period (Figure 3).

Figure 1. Location of 3 transects and 4 observation points used to document migratory bird nesting in McNabney Marsh, Martinez, CA.



Figure 2. Observations of active nests detected during surveys for nesting birds in McNabney Marsh, Martinez, CA, 2013.



DISCUSSION

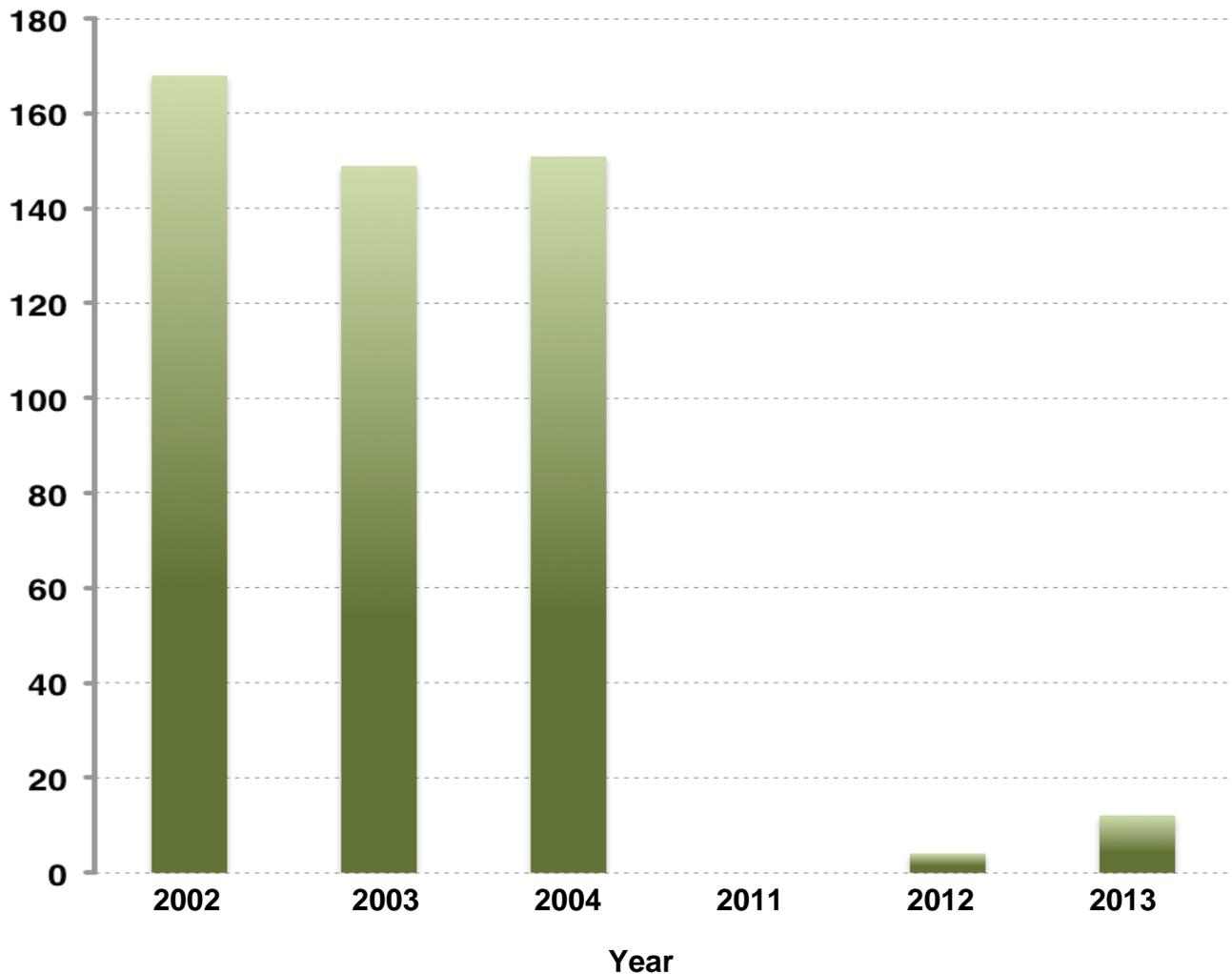
The 2013 nesting season for migratory birds in McNabney Marsh appeared to begin the last week of March, which is approximately one week earlier than the 2011 and 2012 nesting seasons. We speculate that the actual nesting season likely initiated in mid-March, as did nesting activity in the general region.

Our surveys, focused primarily on ground nesting birds that might be impacted by hydrologic management changes. A single Mallard nest was detected 27 MAR 2013, which then initiated surveys every other week.

On 25 April, a peak in the nesting count ($n = 18$) was observed. This is approximately the same time period as in 2011 and 2012. However, a second peak in nesting occurred in late June, which was not observed in previous years. Survey efforts for the entire 2013-nesting season resulted in 35 ground nests detected.

The PSWAC, MVSD, and Solvay worked cooperatively to implement the recommendations for tide gate operations developed to allow Solvay to flood irrigate a pickleweed marsh on their property downstream from McNabney Marsh, while not flooding nests. As part of the

Figure 3. Number of observed fledglings in McNabney Marsh 2002–2004, and 2011–2013.



recommended procedure, MVSD placed staff gauges in Peyton Slough and McNabney Marsh, and worked closely with Solvay to determine appropriate water levels that could protect most nests, avoid flooding on adjacent properties, and provide flood irrigation to Solvay's pickleweed marsh. The selected range on the East Channel staff gauge was 1.8–2.3 feet. It was feasible for water levels to fall below 1.8' as long as the substrate was not allowed to dry sufficiently to attract birds to nest at these lower elevations.

Unfortunately, gate manipulation was not as successful as originally hoped. At least nine days were reported where water levels exceeded the 2.3-foot level. Twenty five nests (71%), among all nest detected, were determined to be flooded during the survey efforts.

Anecdotal follow-up surveys and scheduled nesting bird surveys indicated that nesting activity declined rapidly in the third week in July (1 nest detected). Based on surveys that were conducted in 2002, 2003, and 2004, the normal decline of nesting would likely have not occurred until late June or early July, however, some interannual variability is expected. At least three fledglings were observed in McNabney Marsh in 2013 during the first nesting wave. An additional 9 fledglings were observed in July, during the second nesting wave, which is a 300% increase from 2012 (Figure 4). Surveys during 2002-2004 indicated that fledglings were observed during May and June from eight species including Canada Goose, Mallard, Northern Pintail, Cinnamon Teal, Gadwall, Killdeer, Black-necked Stilt, and American Avocet. Our observations included fledglings from Canada Goose, Mallard, Gadwall, Killdeer, and Black-necked Stilt

It is worth noting that on 21 MAY 2013, biologists detected nesting activity by Black-necked Stilts on one of the floating nesting rafts. This observation is significant since shorebirds are not known to use rafts of this size. Artificial nesting substrate used by shorebirds has typically been in the form of alter barges and other very large structures. The first stilt nest detected failed due to unknown causes. Several days later a second stilt nest was started on a raft approximately 100 feet to the east and fledged at least a single young—one of two Black-necked Stilt fledglings in 2013.

Based on our observations, we attribute the low numbers of ground nesting bird fledglings in McNabney Marsh to a single element: 1) the operation of the tide gates such that water levels exceeded the 2.3 foot level at a time when nests were vulnerable to flooding.

In February 2013, MVSD's District Biologist detected a California Black Rail in McNabney Marsh near the East Channel Tide Gate. Biologists from The Wildlife Project confirmed this sighting in March 2013 through vocalizations and direct observation. Additionally, biologists from The Wildlife Project detected calls from California Clapper Rail in McNabney Marsh during field work early April 2013 (Fig 4). Both species are known to nest in the vicinity, and in similar habitats, and both species were detected in McNabney Marsh during the nesting season. The California Clapper Rail and the California Black Rail are considered fully protected species by the State, and both species are considered by the State to be endangered and threatened respectively. The United States Fish and Wildlife (USFWS) also considers the Clapper Rail to be endangered. Unless determined otherwise, the California Clapper Rail and the California Black Rail should be considered present and nesting in McNabney Marsh.

MANAGEMENT RECOMMENDATIONS

Understanding breeding behavior and nesting habitat requirements is necessary for obtaining optimal breeding success for both common and special-status species occurring in McNabney Marsh. Studies such as this provide information about the timing and extent of nesting activity on McNabney Marsh and should be considered when managing these wetlands for increased habitat function and value. All of the species that were documented as nesting in the marsh are protected by the Migratory Bird Treaty Act and thus afforded a level of protection that precludes take of the individual birds, nests, eggs, or parts thereof.

Management actions including tide gate operation, vegetation control, silt removal, and levee maintenance and repair should fully consider the timing of nesting activity prior to any potentially harmful management action going forward. To avoid non-compliance with the Migratory Bird Treaty Act, tide gate operations that would significantly change water levels in McNabney Marsh and associated wetlands should be carefully controlled or avoided between early March and late July.

To best ensure the success of nesting birds in McNabney Marsh, the following Management Recommendations are strongly suggested:

- Avoid anthropogenic flooding events in McNabney Marsh between March 1 and August 1. If tidal action is desired in the spring and summer months, tide gates should be opened prior to March 1st so that water levels and shoreline areas are well established prior to ground nest site selection by nesting birds.
- Conduct monitoring of migratory bird nesting activity on an annual basis, following the methodology provided above. Data should be compared year to year. Annual monitoring can be concluded when data suggest annual changes in fledgling rates do not fluctuate significantly year-to-year.
- Conduct daily water level monitoring in McNabney Marsh, using the East Channel staff gauge, in conjunction with annual migratory nesting bird surveys.
- Avoid any take of California Clapper Rail and California Black Rail or their nests.
- Conduct population surveys for both Black Rails and Clapper Rails in McNabney Marsh. Consider creating management plans for both species.
- Work cooperatively with PSWAC and tide gate operators to manage the marsh in a manner that promotes the fledging of migratory nesting birds, California Clapper Rail, and California Black Rail.

Figure 4. Location of California Clapper Rail (CACR) and California Black Rail (CABR) at McNabney Marsh, Martinez, CA, 2013.

