2024 Black Rail Summary Report

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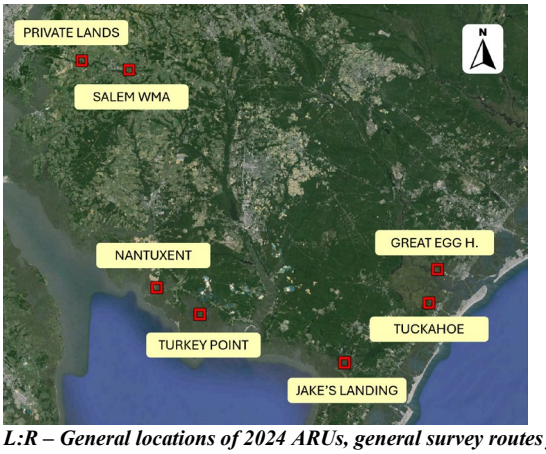
Background

- A focused Black Rail survey was initiated in 2015 and continued in 2024 as concerns over the security of the Black Rail population along the eastern seaboard, and particularly the mid-Atlantic, continue. Surveys have taken place in 2015, 2016, 2018, 2019, 2021, and 2024. In 2024, an effort of nocturnal call-playback surveys and acoustic recording unit (ARU) deployment was undertaken.

Key Findings

- Endangered and Nongame Species (ENSP) biologists continued to use the GIS-based Marsh Zone Map (publicly available from the Saltmarsh Habitat & Avian Research Program website) as well as ground truthing areas to select points for call-playback surveys and ARU deployment.
- Each point was located at least 400m from any other and coded as either "water" or "road". Points were also segregated into their Watershed Management Areas (Mullica, Great Egg Harbor, Cape May and Maurice-Salem- Cohansey). For example, point GEH-W-208 was point #208 in the Great Egg Harbor Watershed Management Area and was accessible by water. In 2024, both "water" and "road" based points were surveyed.
- Call-playback survey protocol was based on the Eastern Black Rail Call-Response Survey protocol. They consisted of a combination of passive listening and recordings of Black Rails. Surveys in 2024 took place 26 April– 8 July and a goal of 5 surveys (at least 7-10 days apart) were attempted at each point. The survey period was ten minutes (plus a five-minute settling in period prior) and calls were recorded in the minute they occurred. Surveys took place between a half hour after sunset and 4am. Surveys took place in low wind conditions with little/no precipitation and on a rising or high tide (to allow boat access in shallow waterbodies). Black Rail data was given the priority, but rail calls of all species were recorded by observers. Site and weather data were recorded for each point as well.
- Staff deployed nine Wildlife Acoustics ARUs, rotating them every two weeks from 1 May- 15 July. Locations were selected through ground truthing in suitable habitat, areas Black Rail calls have been captured in the past and occasionally to capture calls that were first detected by birders. New in 2024 was to select a few inland sites where there are no historic records, but where Black Rail may try to nest as the coastal sites become inundated with water and less suitable. The units were set to "listen" for the first 10 minutes of each hour from 10pm-4am until mid-June. At that point, access to automated review software then made it possible to record straight through 10pm-4am until mid-July. Data files were reviewed through a combination of manually and an automated process available through RavenPro software.
- ENSP staff carried out the surveys with the assistance of one seasonal employee and six contracted freelance biologists at 40 water-based points and 20 ARU locations. Survey points consisted of a combination of those that had "hits" in the past and new locations in suitable habitat.
- Thirty of the water-based survey points were surveyed the prescribed five times with the remaining ten points being surveyed four times (poor weather prevented these points from being surveyed five times).



L:R – General locations of 2024 ARUs, general survey routes for call playback points

- Four Black Rail were detected (a fifth was possible but not able to be confirmed). All were on acoustic recordings, none were reported on the call-playback surveys. Least Bittern and Saltmarsh Sparrow were heard on call-playback surveys. In addition, two other species of rail, ten other species of passerine, three species of ducks/geese, four species of wading birds, three species of raptor, seven species of shorebirds, one species of gull were heard.

Conclusions:

- Nocturnal surveys continue to be the best time to survey this species in New Jersey, but this comes with many logistical challenges. Important components for successful boat-based surveys were an understanding of the waterways (accomplished through daylight recon trips), appropriate lighting system and spotlight on the boat, reliable GPS or electronic mapping system (such as Google Earth on smartphone) to follow in real time, and ability to track weather through radar during the survey. Challenges included having only one boat operator and being limited to nights with good weather *and* the correct tides. Road-based points are much easier, logistically, but don't provide as good access to habitat as water-based points.
- This was the third time there was a dedicated seasonal employee on this project and that allowed the ARU component to be even more fully realized than in the past. ARUs are showing their promise to increase the amount of area that can be surveyed (and the amount of time each area can be surveyed) during a busy survey season when only a handful of nights provide conditions suitable for water-based surveys. The downside is that there can be an immense amount of data collected to analyze. To address this, in 2021 staff adjusted the ARU schedule so that there was one hour of data/unit collected each night, versus six hours in 2019 and this was the strategy that was started with in 2024. But automated review is making progress and access to RavenPRO halfway through the season allowed staff to ramp up recording time back to six hours per night. There are still some concerns that the automation may miss some types of calls, but identifying at least four individual Black Rails this year helps lessen that issue. The units themselves continued to function well, were easy to operate, and were dependable in the marsh environment.
- The detection of Black Rails on the survey was welcome, as there are some years when no rails are detected. However, it is important to note that four Black Rails (plus any that were detected by partners) whose breeding status/outcomes are unknown is not enough data to comment on the status of the state's population, other than to conclude it is very low. There is still so little known about Black Rail in New Jersey that it would be irresponsible to draw conclusions beyond Black Rail are not yet extirpated from the state and that birds were calling during the breeding season.
- The inland sites did not lead to additional rail observations but highlighted the habitat that is not currently surveyed and suggested that more investigation into these areas is warranted.

Recommendations:

- Experiment with a field season of ARU-only and no call-playback surveys. The boat-based call-playback surveys are very resource intensive and depend on a specific matrix of weather and tidal conditions. With the recommended survey replication increasing from three to five, it is also increasingly difficult to find contractors that are able to make this nocturnal commitment amongst their other personal and professional responsibilities. ARUs continue to show immense promise for surveying so it may be worthwhile to dedicate an entire season to only surveying with them. This will allow investigators to experiment with different intervals of deployment, increase the area surveyed, and spend more time honing data analysis techniques.
- Work with partners to find ways to expand the value of ARU data (this could include tying it to eDNA sampling, for example).