

YUMA RIDGWAY'S RAIL SURVEY PROTOCOL FOR PROJECT EVALUATION

Yuma Ridgway's (Clapper) Rail (*Rallus obsoletus [longistrostris] yumanensis*)

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This Yuma Ridgway's Rail survey protocol for project evaluation was developed to provide greater confidence in survey results used for evaluating project impacts to Yuma Ridgway's rails and their habitat. Surveyors evaluating projects for potential impacts to Yuma Ridgway's rails (e.g., typically those that involve consultation with the Service) will need to be prepared to make up to six visits to determine presence/absence. The purpose of these additional survey visits is to provide greater confidence in determining Yuma Ridgway's rail presence/absence and direct limited resources to where they can be most beneficial. This Yuma Ridgway's rail survey protocol for project evaluation has been accepted for use in Southern California and Arizona along the lower Colorado River, as well as Central Arizona, and Southern Nevada.

We continue to recommend using the National Marsh Bird Protocol (Conway 2011) for general surveys and situations where the results will NOT be used to evaluate project effects (e.g., a *minimum* three survey effort). Information about this protocol can be found at: <https://www.cals.arizona.edu/research/azfwru/NationalMarshBird/index.htm>.

Background

Paired Yuma Ridgway's rails nest in cattail marshes with vocalizations peaking during the onset of the breeding season in early spring (mid-March and mid-May) (Conway *et al.* 1993). In contrast to "clattering" by individual birds or a "duet" which is a pair of birds clattering together, single male "keking" is highly seasonal, almost exclusively occurring in March and April. For information on Yuma Ridgway rail natural history, threats, and recovery, please go to:

https://www.fws.gov/southwest/es/arizona/Yuma_Rail.htm.

Based on Gibbs and Melvin (1993), three or more surveys are needed to establish marsh bird presence in a wetland with 90 percent certainty. Conway *et al.* (1993) identified a 40% detection rate to call prompting. Based on a detection probability of 0.4, six survey passes are required to achieve a confidence level of 0.95. Because of the secretive, endangered status, low detectability of the Yuma Ridgway's rail, six surveys, using this protocol, should be conducted in all appropriate emergent marsh habitats to determine absence for project evaluations. Presence of a Yuma Ridgway's rail territory is considered if a clatter call is heard, and/or if a call is heard at a site at three separate visits. Only after all six surveys with no responses would the Service consider Yuma Ridgway's rail absent.

Surveyor experience and training

We recommend that people seeking permit authorization to conduct playback surveys participate in the annual Marsh Bird Survey Training. This training covers survey methodology and Yuma Ridgway's rail identification as well as identification of other marsh birds. In order to gain practical Yuma Ridgway's rail survey experience, we also recommend surveyors complete at least 4 visits at 2-3 hrs. each (min. 8-12 hrs.) with permitted surveyors. Surveyors should familiarize themselves with the various call types and with estimating distances to birds calls. Learning marsh bird vocalizations is essential; common Yuma Ridgway's rail vocalizations include, but are not limited to the "clatter," "duet," "kek," "kek-hurrah," "purr," "agitated kek," and "kek-burr." Training should include ways to minimize disturbance to rails and impacts to marsh vegetation as well as use of GPS to mark survey locations. New surveyors should strive to achieve at least 90 percent accuracy in identifying and mapping Yuma Ridgway's rail calls across a minimum of 30 separate encounters where at least one similar sounding species is known to be present, as observed and documented by their experienced, permitted trainer. Surveyors should familiarize themselves with the survey form and its terms, and the summary form (https://www.fws.gov/southwest/es/arizona/Rail_Protocol.htm). Marsh bird calls can be found at (<https://www.cals.arizona.edu/research/azfwru/NationalMarshBird/>). For Yuma Ridgway's rail calls specific for this survey please contact your permits office.

Permits

The surveys should be conducted by a biologist who has a section 10(a)(1)(A) Fish and Wildlife Service recovery permit and the appropriate state permit(s). For permit authorization, the Service recommends that individuals wishing to apply for a recovery permit (<https://www.fws.gov/forms/3-200-55.pdf>) be able to demonstrate their proficiency at distinguishing Yuma Ridgway's rail calls from those of other bird species that may occupy the same habitats, such as the Virginia rail (*Rallus limicola*) and least bittern (*Ixobrychus exilis*). Once a permit is issued, the surveyor is responsible for following instructions described in the permit, such as special conditions, coordination with the Service, contacting landowners, and deadlines for submitting all forms.

Tips for preparing to conduct surveys

Surveyors should obtain authorization from land owners/managers for access, conduct reconnaissance visits, develop survey strategies, and have the appropriate equipment/documents prior to conducting surveys. Ensure that MP3 players, GPS equipment, external speakers, recorders, cameras and other equipment are working prior to conducting surveys and that extra batteries are available. Speakers should be able to reach 80-90 decibels (dB) without distortion 1 meter away from the speaker. Measuring decibel level will require the use of a sound level meter. Speakers should be checked at the beginning of each day that a survey is planned. Ensure that notebooks, maps, field guides, permits, and survey forms are available. Surveyors should become familiar with the survey area, access, and other details necessary to physically conduct the surveys. Survey forms should be on hand to ensure all appropriate data are collected (location, weather, bird, site conditions, etc.). A survey strategy should be developed that includes a detailed map depicting the survey site, the access point to the marsh, the listening and

call stations along the route, and any marsh landmarks. Landmarks can include notable trees that are viewable from the surrounding area, ditches, levee gates, cell towers, power poles etc. Aerial photographs and site photos can be helpful tools to describe surveys, landmarks, and any survey and detection related incidents.

Documenting Yuma Ridgway's rail vocalizations and locations

All Yuma Ridgway's rail individuals should be documented by noting the call type, location, and time on a detailed map of the marsh. The call types are coded as C = clatter, D = duet, K = kek, B=kek-burr, H=kek-hurrah, with an S representing a visual sighting. Other unusual calls also should be noted. If a pair of Yuma Ridgway's rails duet they should be documented as separate individuals but noted as a pair in the notes section of the survey form. If a Yuma Ridgway's rail is moving during the survey, several locations may be noted for the same bird(s). If a Yuma Ridgway's rail is heard by one surveyor and not the other, between surveys (between listening and calling stations), or detected outside of the focus area, these detections should be marked on the map and described on the survey form. Abbreviations of other focal species, and their species calls are noted on the data form. If the surveyor is experienced in identifying these other species they can be noted on the forms, but the primary focus of these surveys is to document the Yuma Ridgway's rail.

Form completion, map development, and submission

Please complete the associated survey form for each visit and submit accompanying maps and photographs documenting the survey site, detections, the survey route, listening and call stations, landmarks, and details (such as call stations, etc.). Please summarize all the surveys in the survey summary form also provided.

If multiple surveyors are working the same site, they should compare maps to determine overlap in detections and to create a master map showing all pairs and individuals located during the survey effort. At the end of the survey, a final master map should be developed once all of the surveys have been completed, showing the dates of surveys, the name of the project, name of the wetland, the survey locations, the path(s) the surveyor(s) walked, and name of the surveyor(s). The map should be signed by the surveyor(s). This final master map should be attached to the survey summary form. Please see examples of survey and summary forms, maps and accompanying documents (https://www.fws.gov/southwest/es/arizona/Rail_Protocol.htm).

Methodology:

Survey conditions

Surveys should only be conducted on warm mornings and evenings (greater than 50° Fahrenheit /10° Celsius). Yuma Ridgway's rail calling appears to be triggered by the first warm spell in the spring. Cold and rainy conditions should be avoided. Surveys should not be conducted during rain or when wind velocities exceed 10 mph (a breeze that keeps leaves or small twigs in constant motion, or which extends a light flag) or wind gusts exceed 12 mph (Conway 2011); responses to the call play-backs are difficult to hear over the rustling of marsh vegetation.

Survey timing

At least one survey visit should be conducted at dusk and one at dawn. The remaining four surveys can be conducted at either dusk or dawn. Dawn surveys should begin 30 minutes before sunrise and proceed for no more than three hours after sunrise. Dusk surveys should begin two hours before sunset and continue until dark. Surveys should be conducted with a minimum of 5 days between surveys.

Survey length

Surveys are to be conducted between March 1st and May 15th under the appropriate environmental conditions described above, and the survey windows below. Surveys conducted outside of these time frames with negative results may not be accepted.

Survey windows

The five survey windows for project evaluation are: Mar 1 - Mar 15, Mar 16 - Mar 31, Apr 1 - Apr 15, Apr 16 - Apr 30 and May 1 - May 15, with no more than two surveys in each window for a total of 6 surveys. A single survey should occur within each of these 5 time periods, and with 2 surveys in the fifth window. If only 5 surveys are completed in March and April as a result of scheduling constraints, 2 surveys are required during the May 1 - May 15 window. Surveys before March 1 and after May 15 will only be considered if positive for rail presence. At least 5 days needs to be between surveys, 7 days is preferable.

Survey area per day

No more than 20 hectares (50 acres) of emergent marsh habitat should be surveyed by one observer per each dawn or dusk survey. A survey route should not have more stations than can be successfully completed within 3 hours of the start of the first survey. If an entire area cannot be surveyed during a single dusk visit, then it may continue the following morning (and vice versa). One survey is considered complete when an entire route covering all listening and call stations is done once.

Using the broadcast speaker

The broadcast player should be placed on the ground (or on the bow of the boat), or slightly elevated if the ground is wet but no higher than a foot off the ground. Surveyors should stand (or sit) 2 m (6.5 feet) to one side of the speaker while listening for vocal responses (remaining too close to the speaker can reduce the surveyor's ability to hear calling birds). Surveyors should point the speaker toward the center of the marsh and should **not** rotate the speaker during the call-broadcast survey. Speakers should be pointed in the same direction for all replicate surveys.

Listening and call stations

This Yuma Ridgway's rail survey effort establishes a site with listening and call stations (with rail recordings) covering the entire marsh area. Listening and call stations should be established no more than 200 meters (656 feet) and no less than 150 meters (492 feet) apart along transects in or adjacent to marsh areas. Stations should be established so that the entire marsh is covered by 150- to 200-meter (492 to 656 foot) radius circular plots.

Listening and call stations should be placed near marsh features that are likely to support Yuma Ridgway's rail (such as cattail stands).

Each listening and call station along the Yuma Ridgway's rail survey route should include a 9 minute and 30 second listening and call session. Surveyors should play the Yuma Ridgway's rail audio recording, including the "kek", "clatter", and "dueting" calls with a digital player and amplified speakers (at normal non-distorted volumes). At each listening and call station begin with five minutes of silence to allow for passive listening and observation followed by Yuma Ridgway's rail calls and a minute of silence. The calls and minute of silence is repeated three more times (for a total of four calling periods totaling about 30 seconds and a total of 9 silent minutes for listening). Surveyors should listen for Yuma Ridgway's rail responses during silence periods. Move on to the next listening and call station after playing and listening for the entire 9 minute and 30 second session if a call is not detected. If a Yuma Ridgway's rail call is detected, stop the call prompting audio and move at least 200 meters (656 feet) to the next station.

Surveyors should avoid crushing emergent vegetation in the course of conducting their surveys. Locate the stations on levee crowns, roads, or boardwalks to the extent such features are available. In some locations, using a small boat may provide the best access. Surveyors should not attempt to physically find a calling bird or nest, and should keep to the perimeter of the marsh or cattail habitat.

Standards for presence and absence

A Yuma Ridgway's rail territory is considered occupied if a surveyor either hears a Yuma Ridgway's rail "clatter" calling by an individual or a pair duet once, or hears individual Yuma Ridgway's rail vocalizations on three separate visits. A clatter call is made by paired rails, either singly or as a pair duet, (male and female) and is the strongest indicator of an occupied breeding territory.. In other cases, a rail might set up a territory without being paired and can give various calls throughout the season. Surveys that are able to determine rail occupancy (clatter call or if an individual Yuma Ridgway rail vocalizations are heard at three separate visits) prior to the sixth visit may not need to conduct all six visits. However, there may be instances where additional visits after occupancy is established can provide important site specific information helpful for project evaluation such as distribution, abundance, and/or habitat use. To determine that Yuma Ridgway's rails are absent, all six surveys must be completed with no responses.

Survey effort consistency

We recommend surveyors conduct the same survey route for the entire season to take advantage of site familiarity. Observers should locate key marsh landmarks or features on a map in relation to each listening and call station and navigate via GPS to consistently locate the individual stations. If a survey of a marsh is conducted over more than one morning/night, observers should begin the subsequent survey at the station adjacent to their previous morning/night's final station if possible.

For sites already using the National Marsh Bird Protocol

To help survey efficiency, if a site has historically used the National Marsh Bird Protocol but is planned for a potential project, the format of the National Marsh Bird Protocol can

still be done (5 minutes of silence preceded by marsh bird calls) but when the Yuma Ridgway's rail call is to begin the four Yuma Ridgway's rail calls from this Project Evaluation Protocol should be played.

All expectations of surveyor training and experience, permits, documentation of vocalizations, and submittal forms associated with this Project Evaluation Protocol are the same (submittal of the National Marsh Bird Protocol forms to be done separately, and data entry into the Avian Knowledge Network should still be completed). Survey conditions, timing, length, survey windows, use of the broadcast speaker and standards of presence or absence should also follow this Protocol.

References

- Conway, C. J., W. R. Eddleman, S. H. Anderson, L. R. Hanebury. 1993. Seasonal Changes in Yuma Clapper Rail Vocalization Rate and Habitat Use. *Journal of Wildlife Management* 57:282-290.
- Conway, C. J. 2011. Standardized North American Marsh Bird Monitoring Protocol. *Waterbirds* 34:319-346.
- Gibbs, J.P. and S.M. Melvin. 1993. Call-response surveys for monitoring breeding waterbirds. *Journal of Wildlife Management* 57:27-34.