

Clapper Rail Protocol for the San Francisco Estuary
Large Scale Population Surveys
January, 2005

General Survey Requirements:

- 1) Obtain required survey permits: USFWS Endangered Species Permit, ESA Section 10(a)(1)(A); California DFG permits (i.e. Memorandum of Understanding); site-specific permissions (e.g. Special Use Permit from a NWR).
- 2) Observers are trained to identify Clapper Rail calls and distinguish CLRA calls from other marsh bird species (see Rail Training document, April 2004).
- 3) Observers are trained to minimize disturbance while conducting surveys (see Walking in the Marsh document, April 2004).
- 4) Environmental restrictions. Conduct surveys at tides when tidal sloughs are no more than bank full, approximately <4.5-ft NGVD at the Golden Gate tide station. Tide height at bank full will vary by site. Avoid high (flood) tides when possible. Full moon periods should be avoided during active surveys when tape playback is utilized, as birds may be attracted out of cover or a response may be elicited, and increase the likelihood of predation.
- 5) Survey Timing. Surveys at a particular location should be spaced at least 1 week apart. Transect surveys: Morning surveys will be initiated no sooner than one hour before sunrise and extended no more than 1.5 hours after sunrise; evening surveys will begin one hour prior to sunset and extend no more than one hour following sunset. Stationary surveys: stay within transect time limitations, survey period approximately 1.5 hours. Surveys should be conducted at both sunrise and sunset if possible.
- 6) Weather. Record wind velocities and weather; conduct surveys at winds <10 mph; do not conduct surveys during heavy rainfall.
- 7) Seasonality. Conduct surveys between January 15 and April 15.
- 8) Survey Stations. Stations should be spaced at least 200 meters apart; stations should be placed on boardwalks or levee tops when possible to minimize disturbance; when surveys are conducted within a marsh, stations should not be placed along slough/channel edges to minimize disturbance to rail species.
- 9) All rail vocalizations should be recorded, noting the call type, location, and time. Locations where rails are detected should be plotted on a map during a survey. The call types are coded as

C = clapper, D = duet, K = kek, B = kek-burr, V = visual sighting. Calls of other rail species should be recorded.

- 10) Information on disturbance (e.g., predator sightings or people) detected during surveys should be recorded.
- 11) Review the [WRMP CLRA protocol](http://www.wrmp.org/documents.html) (or <http://www.wrmp.org/documents.html>), p. 21-32, for other general information. Defer to the requirements listed above if they are more restrictive than the WRMP protocol.

Survey Specifics

Rail Density	No. Surveys	Survey Type	Tape Playback
High	2	S	No
Low or Mid	3	T	Yes

High Density: Faber-Laumeister, Palo Alto Baylands, Greco Island, Dumbarton, Mowry.

Mid to Low Density: all other marsh sites.

Transect Survey (T): Stations set apart by approximately 200-m. The first 3 surveys are passive (listening) for 10-minutes/station/visit. A 1-minute tape broadcast can take place on the 3rd round of surveys, after a 10-minute passive survey, followed by another 9 minutes of passive surveying (10 min. silence, 1 min. tape, 9 min. silence).

Stationary Survey (S): Stations set apart by approximately 200-m. Observers are present at each station within a grid/transect of stations for the entire 1.5-hour survey period.

Tape Playback: Tape/CD should include a combination of clapper/clatter and duet calls. The tape should include at least 4 complete calls with at least 5-s of silence between calls. A standard tape should be developed for all surveys (type and sequence of calls). Tape playbacks should be broadcast in all directions over the marsh at a station.

Volume/Quality of Playback: Standardize, as nearly as possible, playback equipment and volume. Volume should be between 80-90 dB at 1-m in front of the speaker.