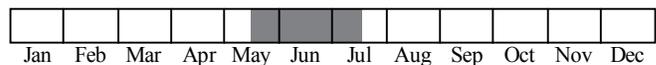


Best Survey Period



**Status:** State threatened

**Global and state rank:** G4/S1S2

**Family:** Rallidae- Rails, Gallinules and Coots

**Total range:** The yellow rail is primarily found in central and southern Canada and the northern United States. Its range during the breeding season includes the Northwest Territories, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, the northern Great Lakes region, North Dakota and the extreme Northeast. Populations may be gone from Ohio and Illinois but disjunct populations likely still occur in scattered locales in the West and Mexico. The winter range includes coastal marshes from North Carolina west through Texas and into Mexico as well as scattered reports along the central California coast (Bookhout 1995, Environment Canada 2001, Evers 1994).

**State distribution:** Historically, the yellow rail has had a widely scattered and poorly known distribution with few confirmed breeding records. The first positive Michigan nest record was discovered in Oakland County in 1920 but this nest was destroyed some days later. In 1934 it was estimated that fifty pairs nested on the Munuscong Bay State Park marsh in Chippewa County, however none were found the following year

and the area has not been surveyed in the recent past. Yellow rails have been found summering (without breeding evidence) in Alger, Jackson, Keewanaw and Schoolcraft counties (Wood, 1951). Known and suspected breeding records for the yellow rail have been documented from five areas in four counties including: Drummond Island (Chippewa Co.), northwest of the community of Trout Lake (Chippewa Co.), the vicinity of Sleeper and McMahon Lake (Luce Co.), the Seney National Wildlife Refuge (NWR) marshes (Schoolcraft Co.) and Houghton Lake marshes (Roscommon Co.) (Burkman pers. comm., Michigan Natural Features Inventory 2001, Walkinshaw 1991).

**Recognition:** Although rarely seen, this secretive small rail is approximately 6-7.5 inches (15-19 cm) in length, with a 10-13 inch (25-33 cm) wingspan. It is **tawny yellow above** and is **streaked with wide dark stripes crossed by white bars**. When flushed its flight pattern appears weak. In flight **a pronounced white wing patch on the trailing edge of its wings** is a distinctive identification character along with its **short wings, stocky body, short tail and dangling legs**. Its bill is relatively short and thick and its chin and upper throat are nearly white. Males are indistinguishable from females, except in the breeding season the dark olivaceous bill of the male becomes corn yellow. The yellow rail is most often identified by its **rhythmic metallic ticking call** given in an alternating series of



“tic tic, tic tic tic” that resembles the sound of a typewriter or two stones being tapped together. The voice has an echoing quality and it can be difficult to discern its origin at times (Burkman pers. comm.). It is not easily confused with other rails as they are much larger. The immature sora (*Porzana carolina*) is nearly twice as large, has a solid brown back, white undertail coverts, and lacks the white wing patch (Bookhout 1995, Evers 1991, National Geographic Society 1987).

**Best survey time:** The best time to survey for the yellow rail in Michigan is between mid-May and mid-July when males are giving their territorial calls (Bart et al. 1984). Although some observers have reported hearing intermittent calls during the day, calling is most incessant and pronounced at night usually beginning after total darkness. The best method for surveying this elusive bird is to visit suitable habitat on nights with little or no wind or rain and to listen for its call. Burkman (pers. comm) found that surveys conducted on clear nights with minimal cloud cover yielded the best results. If the yellow rail is not detected initially, the surveyor can imitate its call by tapping two stones (or two quarters) together or use a playback recording of its call and then listen for a response.

**Habitat:** The breeding habitat of the yellow rail in Michigan is characterized by extensive wet sedge meadows dominated by *Carex lasiocarpa*. The substrate ranges from moist to standing water up to 18 inches (46 cm) and the quality of habitat is diminished by the invasion of woody species and cattail (*Typha* sp.) (Bookhout 1995). Habitat at Seney NWR includes homogenous areas of > 90% *Carex lasiocarpa* interspersed with islands of scrub-shrub wetlands and sand ridges with young to mature woody growth (Bookhout and Stenzel 1987). Because *Carex lasiocarpa* is a mat forming species, the dead stems bend over and persist for several years, forming a dense horizontal carpet a few centimeters above the soil or water. In some regions this sedge is positioned above sphagnum moss (Burkman 1993). Burkman (pers. comm) found that when the dominant vegetation of *Carex lasiocarpa* was replaced over time by another type of sedge or grass that the yellow rail no longer nested in these areas. Other species of sedge and grass, which are thicker, do not bend over and form the dead, loose layer of vegetation that the yellow rail uses for cover. Community associates include sandhill crane (*Grus canadensis*), common snipe (*Gallinago*

*gallinago*), sedge wren (*Cistothorus platensis*), savannah sparrow (*Passerculus sandwichensis*), Le Conte’s sparrow (*Ammodramus leconteii*) in the north, and Henslow’s sparrow (*Ammodramus henslowii*), in the south (Walkinshaw 1991).

**Biology:** Yellow rails return to Michigan from their wintering grounds from late April to mid May. Although not often encountered during migration, bird-watchers have found them on a regular basis in Benzie County and the Waterloo Recreation area (Jackson and Washtenaw counties). During migration they travel at night and towards morning they may land in sedge or open grassy habitats, or might be found in unexpected places such as suburban lawns (McPeck 1994). Pair formation likely occurs on the breeding grounds and yellow rails are presumed to be monogamous. Within one week of arrival males establish territories, which can overlap (average 19.0 acres {7.8 ha}) and give their clicking calls nightly during the pre-incubation period which last about one month. Female areas average 3.0 acres (1.2 ha) during pre-incubation, and decrease to 0.7 acres (0.3 ha) during incubation (Bookhout and Stenzel 1987). The yellow rail is considered by some to be a semi-colonial nesting species as it is more typical to find groups of birds nesting together than it is to find single pairs. Thus, a larger sedge meadow is needed to accommodate several pairs of birds and the marshes used for nesting are discreet and scattered throughout their breeding range (Burkman pers. comm.). Nests are woven from grass and are usually placed over shallow water in a tussock or on top of dead grass. Nests are four to five inches in diameter and one to one-and-a-half inches thick, with a deep cup. They are concealed in a natural hollow with an overhanging tuft of vegetation or under a canopy of grass. Both sexes take part in nest building but females finish the nests (Baicich and Harrison 1997, Savaloja 1981). At Seney NWR, nests of 6-10 eggs are laid between the last days of May and early June (Stenzel 1983). Eggs are creamy buff and capped at the large end with a wreath of reddish brown spots. Incubation is done solely by the female and lasts 16-18 days. The female tends the glossy black nestlings, which leave the nest within two days of hatching. The young become independent in three weeks and fly in 35 days (Baicich and Harrison 1997, Bookhout 1995). Renesting may occur if initial nests are unsuccessful. Females give a variety of calls: *rowr* (given when the nest is disturbed), whining (used to attract the young) and moans (given when brooding). Young chicks and



juveniles give various *wees and peeps*, while only juveniles have been heard to give barks (Stalheim 1974).

Although the yellow rail calls primarily at night it is not actively nocturnal. At night it is sedentary and does most of its feeding during the day in areas of shallow water, concealed by dense vegetation. The yellow rail picks its food from the ground and from the surface of the vegetation. Birds in captivity have been observed submerging their heads one-and-a-half inches (3-4 cm) under water, presumably to feed on invertebrates (Stalheim 1974). Small freshwater snails constitute a large part of the yellow rails diet supplemented by other aquatic and terrestrial invertebrates (Bookhout 1985, Savaloja 1981, Stalheim 1974, Stenzel 1983). Although rarely seen, the yellow rail walks by placing one foot directly in front of the other, leaving a straight line of tracks or runs with its head stretched forward and feathers sleeked back, often flashing out wings for balance (Bookhout 1975, Stalheim 1974). Burkman (pers. comm.) reports that when calling yellow rails on very calm nights, the first indication that a bird is near is that the sedge moves in a line towards the person imitating its call. When disturbed it will freeze, relying on its camouflage, or may submerge itself in water, or fly feebly, barely clearing the top of vegetation (Bent 1926, Ehrlich 1988, Stalheim 1974). It will commonly chase other yellow rails that intrude its territory causing the other rail to run away quickly with a squeaking call. Calling generally ends in mid-August with fall migration beginning in late August and continuing through early October in southern Michigan (Evers 1991).

**Conservation/Management:** In Michigan, the few known yellow rail breeding sites are relatively protected by private, state and federal agencies, although in the past loss of wetlands to human activity played a primary role in its disappearance from other areas of the state. Good interagency and interstate communication and coordination is needed to best manage this species. A cooperative effort with Great Lakes states to survey and manage known breeding marshes would be very useful and would benefit several other species as well (Burkman pers. comm.). Long term management of these sites which takes into account the impacts of vegetative succession, changes in hydrology and human disturbance is needed (Evers 1994). Succession of vegetation acts as a limiting factor because invasion of woody vegetation reduces the suitability of wetland habitat for yellow rails. Without active management, wet

sedge meadows can become occupied by dense stands of leatherleaf (*Chaemadaphne calyculata*), bog birch (*Betula pumila*) or willows (*Salix* spp.), which results in the depletion of habitat available to nesting yellow rails (Burkman 1993). Prescribed fire has been used successfully in northern Michigan as a management tool to rejuvenate sedge growth, limit woody growth and impede the establishment of boreal flora such as sphagnum moss (Evers 1994). Burkman (1993) in her study at Seney NWR, found that yellow rails apparently responded positively to burned habitat. All of the rails (n=8) detected during surveys were found on burned plots that had lower percentages of shrubs and higher percentages of *Carex lasiocarpa* than on control plots. Burkman (pers. comm.) emphasizes the need to rotate prescribed fires so not all areas of a known marsh are unavailable in a given year.

It is important to understand how water level fluctuations impact yellow rail populations. Currently it is not known what water depths are optimal for this species (Burkman pers. comm.). Marginal water level changes in seasonal and annual water depths are natural but ditching or altering water flows (which result in drier habitats) and diking and flooding areas have negative effects on preferred microhabitat structure (Evers 1994). Manipulation of water levels on refuges to benefit migratory waterfowl could adversely affect yellow rails if the objective is to provide deepwater marshes. Retention of wet sedge meadows as a component of marsh habitat is essential to maintenance of yellow rail populations (Bookhout 1995). Although direct human disturbance is probably not a limiting factor, since hunting of yellow rails has been closed since 1968, continual visits by large groups may damage the rail's microhabitat and disturb breeding success. Since this species is dependent on transitory habitats, this suggests that it can colonize new sites as they become available. Thus, management and protection of occupied as well as unoccupied, potentially suitable habitat throughout the state is crucial for the long-term survival of the yellow rail in Michigan (Evers 1994).

**Research needs:** Many believe that this species is more abundant than encounters would indicate. Systematic surveys across the known breeding range should be developed and run for several years to determine whether this is actually true and would reveal the habitats occupied by the yellow rail (Bookhout 1995). Burkman (pers. comm.) recommends focusing



surveys on historical known sites with some additional short term effort in locating previously unknown locations since she believes that nesting sites for this species are limited. Inclusion of the yellow rail in state breeding bird surveys would provide updated information on population trends as well (Burkman 1993). Due to its secretive nature and poorly known distribution, many aspects of the natural history of yellow rails remains unknown. The lifespan and survivorship of this species is unknown and no data is available on annual and lifetime reproductive success (Bookhout 1995). It is not known why the personnel at Seney have never retrieved a banded bird, despite the fact that they have been banding male yellow rails for years (Burkman pers. comm.). Research should emphasize how to maintain breeding sites by habitat manipulation and wetland preservation. Additional management techniques (in addition to controlled burning, water level manipulation and mowing) should be explored to set back succession and maintain sedge meadows for prime nesting habitat (Bookhout 1995). Burkman (1993) suggests that further research is needed to test the hypothesis that flooding after burning reduces the regeneration of woody species more efficiently than the isolated application of prescribed fire. Very little is known about yellow rails on their wintering range and whether current available habitat is sufficient. Research is needed to determine the impact that loss of coastal marshes may have on this species and whether management is needed to enhance their wintering habitat (Bookhout 1995).

**Related abstracts:** northern harrier, short-eared owl.

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