

Limpkin
Aramus guarauna

This profile is a short summary of information to introduce the species and does not summarize all available information on the species.

Listing status: USFWS = Not listed
FWC = Species of Special Concern

Trend: In the late 19th and early 20th centuries, limpkins were heavily hunted and greatly reduced in numbers except in more remote locations. Furthermore, wetland drainage reduced usable habitat, especially in the northern Everglades, upper St. Johns River Valley, and the Kissimmee River Valley. Breeding Bird Survey data indicate a decline from 1966 through 1993, although recent years are relatively stable.

Threats: Major threats include changes in water quantity or quality that affect apple-snail abundance or availability. These include hydrology alteration, invasive exotic aquatic plants, pollution, siltation, etc. There are also concerns that the timing of aquatic plant control may affect apple-snail populations in regards to eliminating cover and oviposition sites.

Notes: The cause of the disappearance of apple-snails and subsequently limpkins from Wakulla Springs is unknown, but was coincidental with sequential flooding events in the 1994 apple-snail breeding season.

Prioritization information:

PLCP PVA proportion of pops modeled to persist on public lands = 1.00

PLCP PVA probability of a 50% decline on public lands = 0.00

Millsap biological score = 24.3

Millsap supplemental score = 14

Legacy population trend = **Unknown**

Legacy population status = Medium

Summary: This species triggers 1 of the 6 parameters.

Life History: The limpkin is a rail-like wading bird that is highly dependent on the apple snail. This species inhabits freshwater marshes, swamps, springs and spring runs, and pond and river margins. Northern breeding populations are found along spring-fed rivers with lush, submerged aquatic vegetation. Throughout its range, limpkins are locally common where apple snails are abundant. The Florida population is considered to be non-migratory, and because of the limpkin's dispersal capabilities it could be considered a single population.

This species is monogamous, or serially polyandrous, with males and females establishing a territory for reproduction. The majority of information on this species comes from a handful of natural history studies, and there are many gaps in our knowledge of their demography. Females and males both breed

successfully in their first year. Limpkins mature quickly, reaching flight stage at about 7 weeks of age. Survival to this flight stage was 28.4%. Adult survival has not been reported. Average clutch size is 5.5 (2.75 females, assuming a 1:1 sex ratio), with younger individuals probably having smaller clutch sizes than older females.

Territory size at Wakulla Springs (Wakulla County) averaged 5.7 ac \pm 3.7 ac (2.3 ha \pm 1.5 ha) while territory size at Alexander Springs (Lake County) averaged 5.2 ac \pm 1.7 ac (2.1 ha \pm 0.7 ha). Territory size may vary greatly from year to year in relation to prey abundance and availability and social phenomena. The territory sizes measured by Bryan (1982) also come from spring runs. Territory size in more open and scattered wetlands (e.g., south Florida prairies and marshes) may be very different from those reported by Bryan (1982).

Preferred Habitat Parameters:

- N/A

Minimum Habitat Requirement:

From PVA: N/A

From Literature: N/A

Best Management Practices: Since this species is capable of significant dispersal, emphasis should be placed on protecting/maintaining as much habitat as possible. The sensitivity to changes in survival suggests that management and field surveys target these parameters. The conservation of limpkin habitat can be accomplished by identifying important wetland areas where wetland regulations may offer some degree of habitat protection. Due to limpkins reliance on apple snails, healthy apple snail populations are important, therefore, healthy eel grass and good water quality are also important.

Monitoring Protocol: Annual monitoring should be initiated due to largely unknown population trends. Point surveys at the interface of emergent marsh and uplands using broadcast calls to elicit vocalizations should be completed 3 times annually. Surveys should be conducted during dawn or dusk (Conway and Timmermans 2005).

For more information on monitoring, see Conway & Timmermans, 2005.

PVA Summary: The Wildlife Habitat Conservation Needs in Florida project created a PVA (http://research.myfwc.com/features/view_article.asp?id=29815) for this species. The majority of information on this species comes from a handful of natural history studies, and there are many gaps in our knowledge of their demography. Parameters such as survival to flight, adult survival, and double clutching rate, are assumed or based on conservative estimates. Therefore, caution should be taken when interpreting results of this analysis.

Due to the dispersal capabilities of this species, the PVA modeled limpkins as 1 state-wide population. A moderate estimate of 5 territories per km²

(0.05 females/ha) was used as carrying capacity, and the lower estimate of 2.5 territories per km² (0.025 females/ha) was used as the initial abundance. This resulted in an initial abundance of 31,595 females on managed lands, with a carrying capacity value of 63,191 females. For the population on all potential habitat, initial abundance was 45,819 females, with a carrying capacity of 91,639 females.

Assuming no changes in habitat quality, the probability of extinction in the next 100 years was zero for both models (all potential habitat and potential habitats on managed lands only). However, there was a noticeable reduction in abundance when only managed habitat was considered. Approximately 69% of the potential habitat was categorized as managed, which reduced the carrying capacity by 30%. Even so, a 30% reduction in carrying capacity (i.e., the managed habitat only scenario) did not significantly increase the risk of a decline. Though reductions in carrying capacity did not increase risk of a decline, a 5% reduction in adult survival led to a dramatic increase in the probability of a decline. Therefore, management efforts should focus on this parameter.

2003 Landcover used for model:

Freshwater marsh and wet prairie	Cypress swamp
Sawgrass marsh	Hardwood swamp
Cattail marsh	Mixed wetland forest
Shrub swamp	
Contiguous blocks within 100 m of open water.	

FNAI Natural Communities used:

Basin marsh	River floodplain lake
Basin swamp	Slough
Flatwoods lake	Spring-run stream
Floodplain marsh	Strand swamp
Floodplain swamp	Swamp lake
Marsh lake	

FNAI field guide description of habitat: Inhabits mangroves, freshwater marshes, swamps, springs and spring runs, and pond and river margins. Also lake margins in peninsular Florida and swales, strand swamps, sloughs, and impoundments in south Florida. May also forage in ruderal areas such as sugarcane fields and banks of irrigation canals. Wide range of nesting sites, including mounds of aquatic vegetation and marsh grasses, among cypress knees, and high in trees.

Important Links:

Florida Breeding Bird Atlas:
<http://myfwc.com/bba/LIMP.htm>

Field Guide to the Rare Animals of Florida (FNAI)
http://www.fnai.org/FieldGuide/pdf/Aramus_guarauna.PDF

Pertinent Documents/Literature:

- Bryan, D. 1982. Social organization and territoriality in the limpkin. M.S. Thesis. Florida State University, Tallahassee, FL.
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- Nicholson, D. J. 1928. Habits of the Limpkin in Florida. Auk 45:305-309.
- Walkinshaw, L. H. 1982. Observations on Limpkin nesting. Fla. Field Nat. 10:45-54.