Species Status Assessment

Common Name: Mink frog **Date Updated:** March 12, 2025

Scientific Name: *Lithobates septentrionalis* **Updated By:** L. Pipino, C. Macklem

Class: Amphibia

Family: Ranidae

Species Synopsis:

Mink frogs, *Lithobates septentrionalis* (Baird 1854), belong to the Ranidae family of frogs (Dodd 2013). The species emerged from the *L. catesbeianus* species group, *Aquarana*, of North American ranid frogs, which includes *L. catesbeianus*, *L. clamitans*, *L. okaloosae*, *L. virgatipes*, *L. heckscheri*, *L. grylio*, and *L. septentrionalis*, about 11 million years ago (Dodd 2013).

Mink frogs have the most northerly southern range limit of any anuran species in North America (Hedeen 1986). The species is widespread in Canada, occurring from eastern Manitoba to southern Labrador (Dodd 2013). In the United States, mink frogs occur in the northern Great Lakes states (Michigan, Minnesota, and Wisconsin) and the northern portion of New York, Vermont, New Hampshire, and Maine (Dodd 2013). Mink frogs have also been introduced in Newfoundland (Dodd 2013). In New York, the species is abundant in the Tug Hill plateau south to Oneida Lake, through the Adirondacks into the St. Lawrence valley, and south to northern Saratoga County (Gibbs et al. 2007, Dodd 2013).

Mink frogs are highly aquatic and closely associated with cold, permanent wetlands (Gibbs et al. 2007, Dodd 2013). In New York, they occupy a variety of lacustrine and palustrine systems as well as beaver-impounded riverine systems (Popescu and Gibbs 2009, Patrick et al. 2012). Mink frogs are morphologically cryptic, superficially resembling green frogs (*L. clamitans*) and typically definitive identifications require having an animal in hand or hearing their distinct call; thus, issues may frequently occur with misidentification of the species (A. Breisch pers. comm., Dodd 2013).

In general, mink frogs are considered to be a common species distributed over a wide area with relatively stable population trends (Dodd 2013, NatureServe 2024). However, continued loss of wetland habitats and climate change pose threats to the species, particularly at the southern edge of its range in New York.

I. Status

a. Current legal protected Status

i. **Federal:** Not Listed **Candidate:** No

ii. **New York:** Not listed; SGCN

b. Natural Heritage Program

i. **Global:** G5

ii. **New York:** S5 **Tracked by NYNHP?:** No

Other Ranks:

-IUCN Red List: Least Concern
-COSEWIC: Not Listed
-Northeast Regional SGCN List (2023): Not listed
-NEPARC Regional List (2010): Species of Moderate Concern

Status Discussion:

The mink frog is considered vulnerable (S3) in four of the seven states where it is found (Vermont, New Hampshire, Wisconsin, Michigan), and apparently secure (S4) in Maine (NatureServe 2023). The species is considered secure in the neighboring provinces of Ontario and Quebec; however, mink frogs are considered vulnerable in Manitoba (NatureServe 2023). The Northeast Partners in Amphibian and Reptile Conservation (NEPARC 2010) lists the mink frog as a Species of Moderate Concern because more than 25% of northeastern states list it as a Species of Greatest Conservation Need (SGCN). Mink frogs were introduced in Newfoundland, Canada, where populations were discovered for the first time in 2001 (Warkentin et al. 2003).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown		N5	
Northeastern US	Yes	Unknown	Unknown		S3S5	No
New York	Yes	Unknown	Unknown		S5	No
Connecticut	No	N/A	N/A			
Massachusetts	No	N/A	N/A			
New Jersey	No	N/A	N/A			
Pennsylvania	No	N/A	N/A			
Vermont	Yes	Stable	Stable	Unknown	S3, Not listed	No (*proposed SGCN in 2025 WAP update)
Ontario	Yes	Stable	Stable	Unknown	S5	No
Quebec	Yes	Stable	Stable	Unknown	S5	No

Column options
Present?: Yes; No; Unknown; No data; (blank) or Choose an Item
Abundance and Distribution: Declining; Increasing; Stable; Unknown; Extirpated; N/A; (blank) or Choose an item
SGCN?: Yes; No; Unknown; (blank) or Choose an item

Monitoring in New York:

There are currently no regular monitoring activities for the mink frog in New York. The New York Amphibian and Reptile Atlas Project (Herp Atlas), conducted from 1990-1999, documented the geographic distribution of all species of amphibians and reptiles in the state. A majority of occurrence records for this species (~78%) are associated with this time period. The Herp Atlas database also includes pre-1990 records from various sources, such as museum records, researchers' field notes, agency reports, and published literature.

Two studies have quantified the distribution of mink frogs in select areas of northern New York in recent years: Popescu and Gibbs (2009) found mink frogs in 10 of 46 (22%) ponds surveyed in the Tug Hill Plateau, St. Lawrence Valley, and Adirondack Park, and Patrick et al. (unpublished data) found mink

frogs in 37 of 73 wetlands (51%) sampled across an elevational/latitudinal gradient in the Adirondack Park in 2010. Notably, the two recent studies used systematic, repeated surveys within the calling season (4-5 surveys per site) to account for imperfect detection of this cryptic species.

Trends Discussion:

Mink frog populations in the United States are widely believed to be susceptible to climate change due to their position on the southern edge of the range of this species. However, no monitoring is currently in place to detect changes in patterns of occurrence over time. Historical evidence from the 1890s suggests that mink frog populations were formerly found in the Catskill Mountains (Wright 2002), representing one of the southernmost portions of the range of the species in New York, although the identification of these specimens has not been verified. As mink frogs have not been reported from this region in over a century, this may indicate a northwards range shift, although this trend needs to be validated.

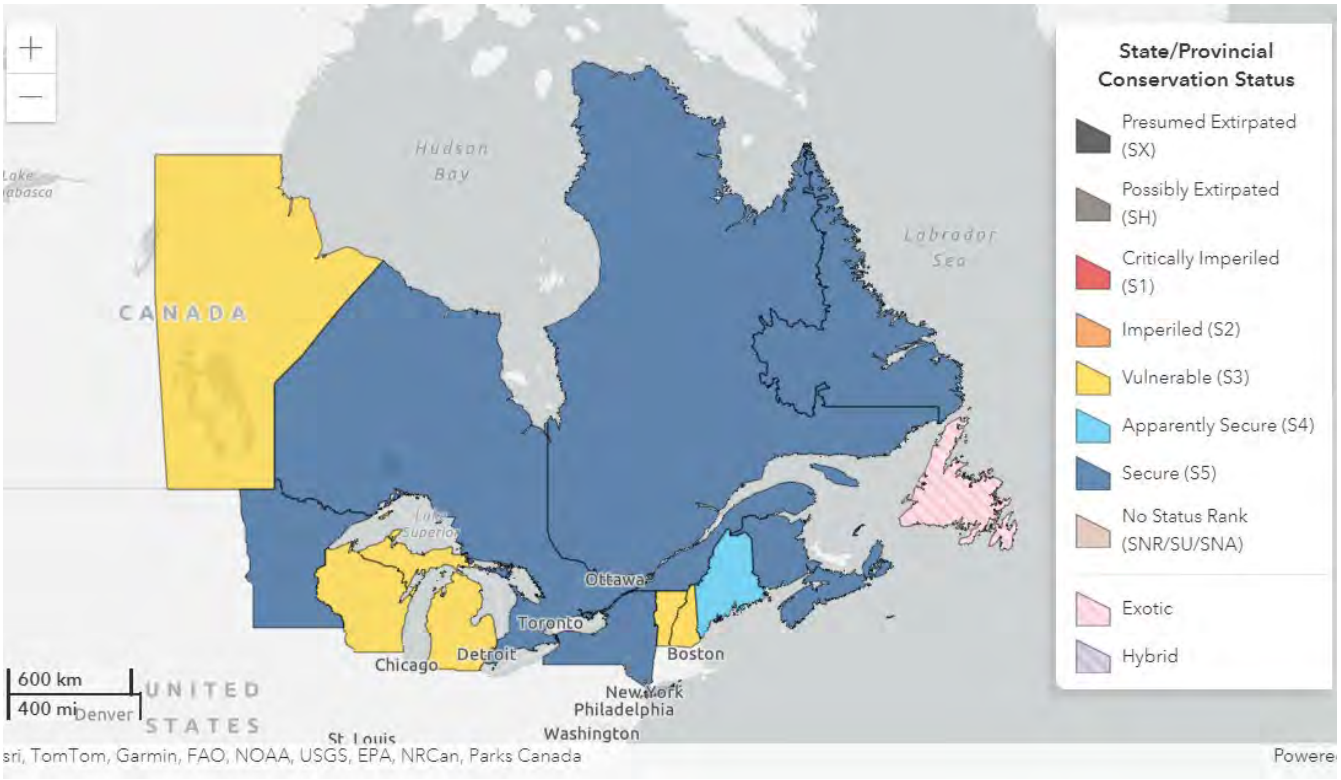

Figure 1. Conservation status of mink frog in North America (NatureServe 2023).

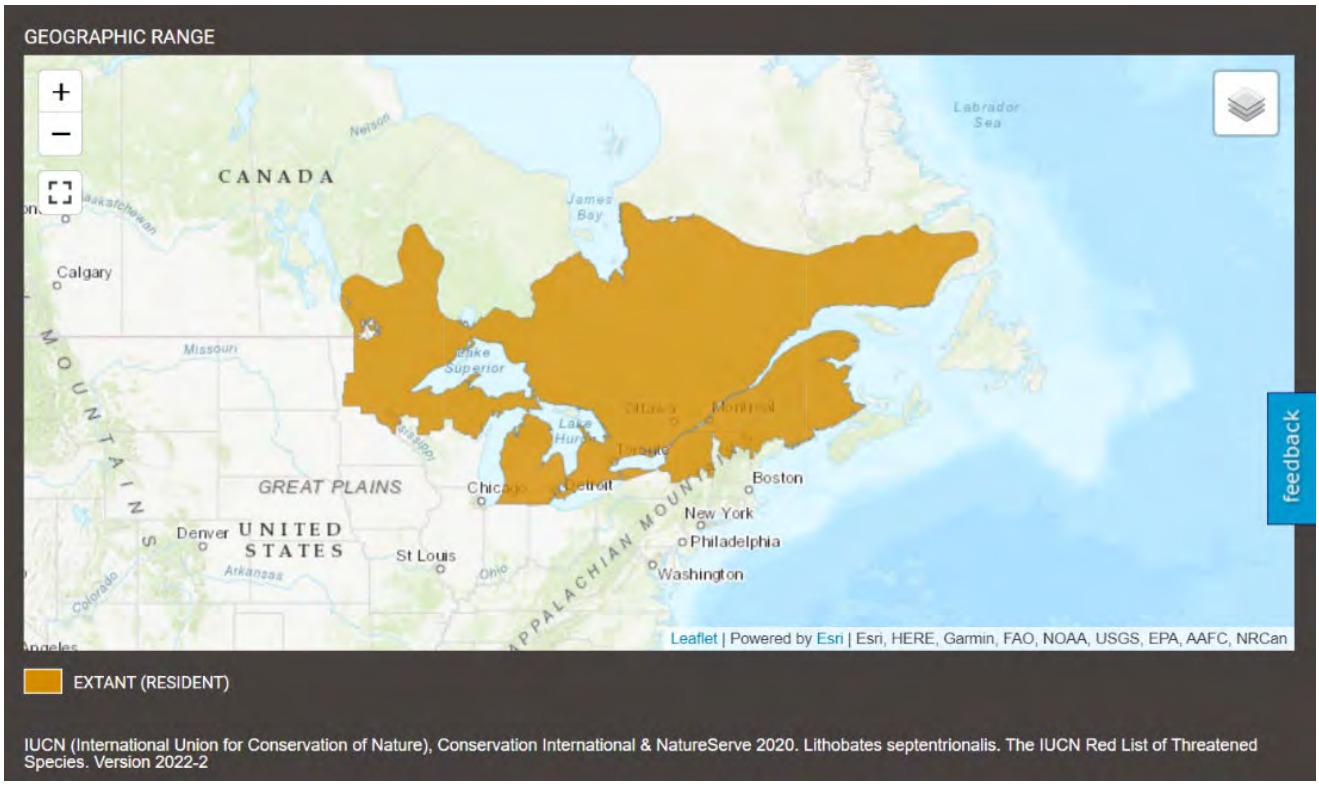

Figure 2. Mink frog range map (IUCN 2020)

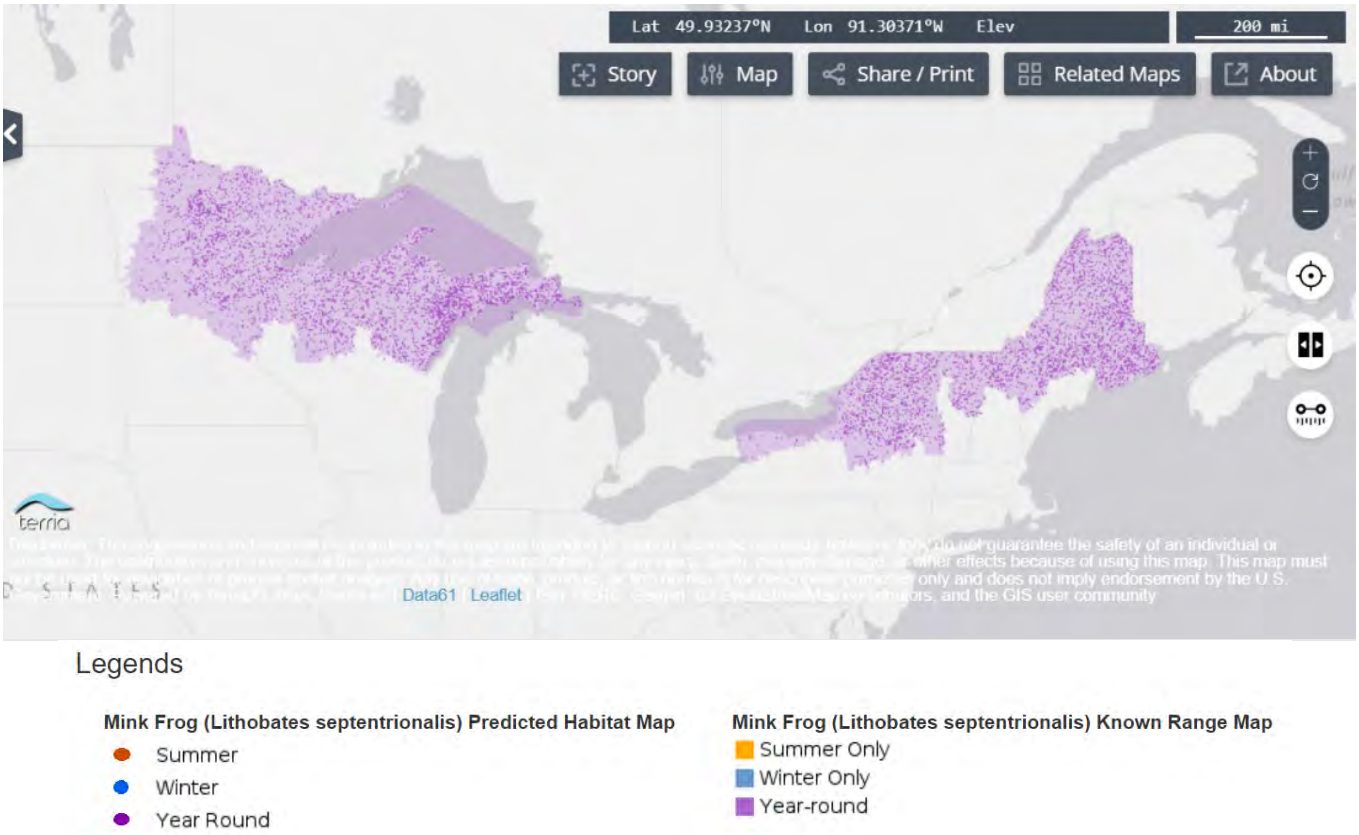

Figure 3. Mink frog predicted habitat map and known range map (USGS 2019)

III. New York Rarity:

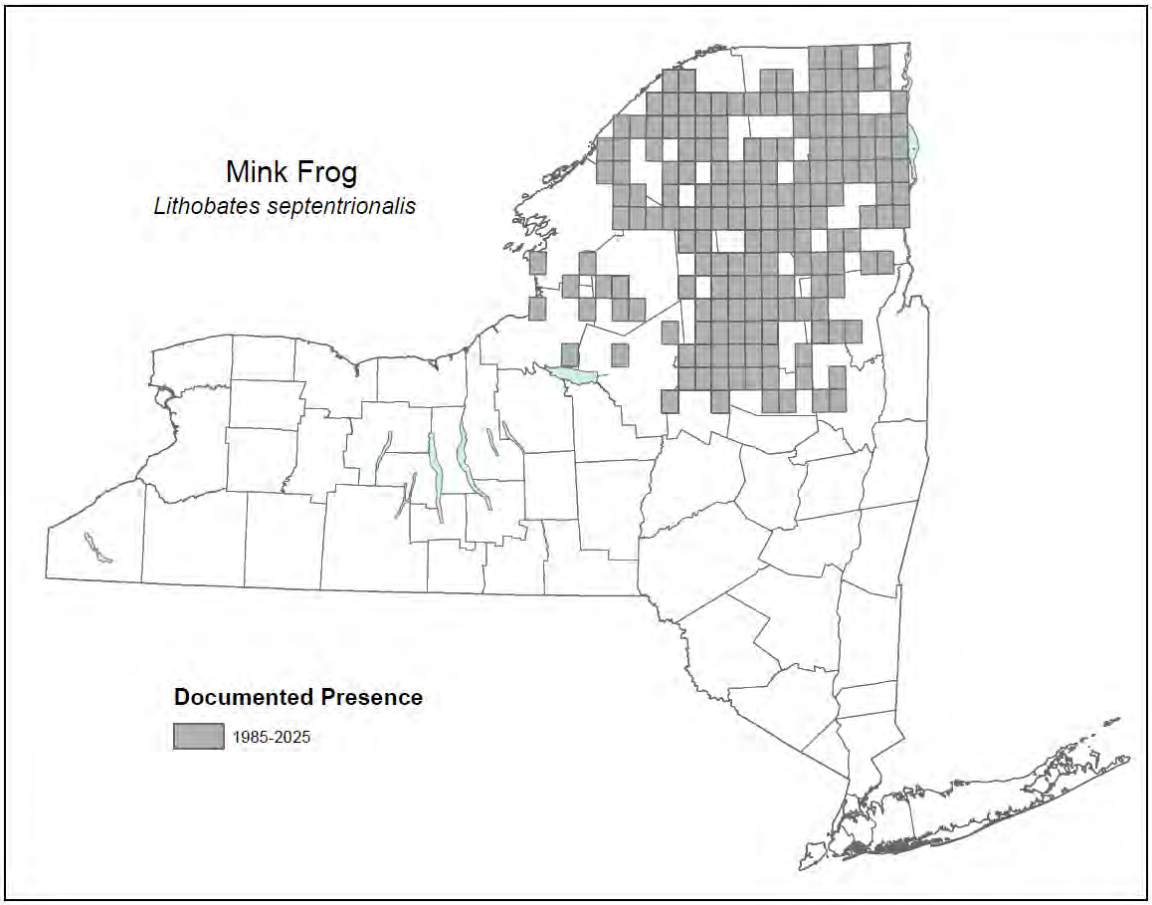

Figure 4. Distribution of Mink Frog (*Lithobates septentrionalis)* records in New York, 1985-2025 (NY Herpetology Database, NYSDEC)

Details of historic and current occurrence:

The New York State Herp Atlas (1990-1999) reported mink frogs as occurring in 167 or 17% of 979 survey quadrangles statewide. Data from 1985-1990 identified records in an additional 9 survey quadrangles, bringing the total to 176 quads (NY Herpetology Database). Historical records from the 1890s suggest that mink frogs may have occurred in the Catskill Mountains (Wright 2002); however, there have been no confirmed observations of mink frogs in this region over the past century.

Citizen science records submitted through iNaturalist align closely with occurrence records from the Herp Atlas (iNaturalist 2025). Unobscured records from this platform identify an additional seven quadrangles not included in Figure 4. Additionally, 12 of the 176 known survey quads have been reconfirmed using iNaturalist data.

Mink frogs appear to be locally abundant within the core of their range in New York State (Popescu and Gibbs 2009). However, their occurrence is patchy, with many apparently suitable wetlands unoccupied (Dodd 2013). Popescu and Gibbs (2009) found mink frogs in 10 of 46 ponds surveyed (22%), and Patrick et al. (unpublished data) documented them in 37 of 73 wetlands (51%). Full choruses were rarely heard during surveys (Amphibian Calling Index [ACI] = 3), and calls were not typically overlapping (ACI = 1). In a related species, the green frog, Nelson and Graves (2004) found that the ACI was a good indicator of abundance, with larger calling indexes correlating with greater abundance.

The difficulty in visually identifying mink frogs, coupled with a peak calling period between 12:30 AM and 1:30 AM (Popescu and Gibbs 2009), creates uncertainty about historical records of this species' occurrence and distribution (Hedeen 1986). Relatively little is known regarding the population biology of mink frogs in New York State, where populations represent a significant eastern segment of the species' range. While recent studies by Popescu and Gibbs (2009) and Patrick et al. (2012 and unpublished data) have greatly expanded our understanding of the factors influencing mink frog occurrence in the state, questions remain as to why the species is restricted to colder environments and how it may respond to climate change.

New York's Contribution to Species North American Range:

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
1-25%	Peripheral	

Column options
Percent of North American Range in NY: 100% (endemic); 76-99%; 51-75%; 26-50%; 1-25%; 0%; Choose an item
Classification of NY Range: Core; Peripheral; Disjunct; (blank) or Choose an item

IV. Primary Habitat or Community Type *(from NY crosswalk of NE Aquatic, Marine, or Terrestrial Habitat Classification Systems):*

1. Lacustrine
2. Palustrine
3. Northeastern Wetland Forest
4. Boreal Wetland Forest
5. Boreal Upland Forest
6. Mixed Northern Hardwoods

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Habitat/ Community Trend	Time frame of Decline/Increase
Yes	Yes	Declining	Wetland loss since the 1970s

Column options
Habitat Specialist and Indicator Species: Yes; No; Unknown; (blank) or Choose an item
Habitat/Community Trend: Declining; Stable; Increasing; Unknown; (blank) or Choose an item

Habitat Discussion:

The range of mink frogs is primarily limited by cold conditions, with their presence decreasing sharply at sites with historical mean July air temperatures >19.5°C (Popescu and Gibbs 2009). Mink frogs inhabit a variety of wetlands, from palustrine habitats to lacustrine systems, including both small ponds and large lakes, provided they contain open water (Hedeen 1971, 1972b, a, 1986, Courtois et al. 1995, Bider and Matte 1996, Popescu and Gibbs 2009). They are also found in beaver-impounded riparian areas and other riparian habitats adjacent to water bodies (L'Arrivee 1989, Popescu and Gibbs 2009, Patrick et al. 2012, Dodd 2013). Mink frogs prefer wetlands with emergent and floating vegetation, as well as substantial amounts of mud and silt substrates (Gibbs et al. 2007, Popescu and Gibbs 2009, Dodd 2013). During egg deposition, the eggs are attached to vegetation up to 1.5 m below the water's surface (Dodd 2013). It is hypothesized that mink frogs are restricted to cold-water wetlands due to the inefficiency of oxygen diffusion to their globular egg masses in warmer waters (Hedeen 1986, Gibbs et al. 2007). During the warm season, mink frogs often occupy shallow, peripheral, and even temporary parts of the aquatic habitat (Gibbs et al. 2007).

Terrestrial habitat surrounding these wetlands typically includes deciduous, mixed, and coniferous forests. However, both juveniles and adults rarely venture far from aquatic environments, and there are few records of terrestrial movement (Hedeen 1986).

V. Species Demographic, and Life History:

Breeder in NY?	Non-breeder in NY?	Migratory Only?	Summer Resident?	Winter Resident?	Anadromous/ Catadromous?
Yes	-	-	Yes	Yes	-

Column options
First 5 fields: Yes; No; Unknown; (blank) or Choose an item
Anadromous/Catadromous: Anadromous; Catadromous; (blank) or Choose an item

Species Demographics and Life History Discussion:

Mink frogs have a relatively short active season, lasting at most five months (Dodd 2013). The earliest emergence record is May 7th in Nova Scotia, and the latest date to enter dormancy on record is September 30th (Gilhen 1984). Mink frogs typically overwinter in the muddy substrate of permanent aquatic water bodies (Dodd 2013). Breeding occurs over an extended period, from June to August in New York, with a peak in late July in the southern part of their range (Gibbs et al. 2007, Popescu 2007) and from May to July in Quebec (Bider and Matte 1996). Egg masses are attached to woody debris or aquatic vegetation beneath the water's surface (Hedeen 1986, Gibbs et al. 2007, Patrick et al. 2012). Egg masses are rarely observed, with estimates egg count ranging from up to 500 (Gibbs et al. 2007) to up to 4,000 eggs (Vogt 1981). In 2013, two egg masses collected in the Adirondacks contained 437 and 660 eggs respectively (Patrick and Byrne unpublished data). Eggs hatch rapidly, typically within 1-2 days, and larvae quickly dissociate from the remaining jelly (Patrick et al. 2012). Larvae take approximately one year to metamorphose (Hedeen 1971), transforming between June and August after reaching a snout-vent length (SVL) of 0.4-0.8 in. (1.1-1.7 cm) (Gibbs et al. 2007). Juveniles are often observed around the margins of breeding wetlands (Patrick, pers. obs.).

Mink frogs reach maturity one year after metamorphosis in southern populations, and after two years in more northern regions, although females often delay breeding until their second year (Hedeen 1972c, Leclair and Laurin 1996). Mink frogs are considered dispersal-limited due to the infrequency with which they are found in the terrestrial environment (Hedeen 1986). This hypothesis is supported by recent research indicating that mink frog occurrence is closely related to proximity to the nearest suitable breeding habitat in the Adirondacks (Patrick unpublished data). However, adult mink frogs have been captured as far as 150 meters away from aquatic habitats in mixed forests in Maine (Patrick unpublished data). A study using pitfall traps also found recently metamorphosed mink frogs approximately 97-150 meters away from a lake habitat (LeGros et al. 2021). In this study, mink frogs were only found in traps located close to a stream, indicating that dispersal movements might preferentially occur via other aquatic habitats rather than terrestrial uplands (LeGros et al. 2021). While not directly reflective of dispersal rates in native mink frog populations, introduced mink frogs in Newfoundland, Canada, were observed to disperse as far as 3.8 km per year, with early dispersal rates reaching 6.5 km per year from the initial introduction site, indicating that larger, population-level movements are possible (Kelly et al. 2017).

As with most Ranid species, juvenile and adult mink frogs are opportunistic feeders, primarily consuming aquatic invertebrates (Stewart and Sandison 1972, Kramek 1976). Mink frogs are depredated by a variety of organisms including aquatic invertebrates, bullfrogs, mammals, and birds (Hedeen 1972a). Mean life expectancy is estimated to be 1.7 - 4.0 years post-metamorphosis, with a maximum lifespan of 5 to 6 years (Shirose and Brooks 1995).

VI. Threats:

The mink frog is a dispersal-limited species that is closely associated with wetlands in intact forest ecosystems. Habitat disturbance, including land conversion for agriculture, development, and road construction, poses a significant threat to population viability. However, much of the species' range in New York is located within areas with relatively strict land protection, such as the Adirondack Park. A long as these protections remain in place, habitat disturbance is not expected to significantly affect the species in this region. However, mink frog populations that occur outside of the Adirondack Park may be vulnerable to habitat alterations.

Road mortality is another threat to mink frog populations. While considered dispersal limited, the stochastic nature of local population dynamics (Shirose and Brooks 1995), coupled with the presence of populations in habitats associated with beaver impoundments, suggests that the species may rely on inter-population movement to maintain regional population persistence in certain areas, functioning as metapopulations. Mink frogs have been documented over 150 meters from the nearest wetland and have been observed crossing roads, particularly where streams connected to wetland complexes intersect with roadways (LeGros et al. 2021). Road mortality surveys have documented mink frog mortalities, even when culverts and other mitigation measures are in place (Cunnington et al. 2014).

Climate change likely represents a significant threat to mink frogs due to their dependence on cool water for breeding (Popescu and Gibbs 2009). The species was also classified as "highly vulnerable" to predicted climate change in an assessment of vulnerability conducted by the New York Natural Heritage Program (Schlesinger et al. 2011). While the mechanisms linking climate to the species' occurrence remain unclear, both direct (e.g., exceeding critical thermal maxima leading to mortality of eggs and/or larvae) and indirect (e.g., changes in predator-prey dynamics and/or inter-specific competition) impacts are plausible. Additionally, the increasing acidity of wetlands under future climate change scenarios may pose a threat to mink frog populations. One study found that the abundance of metamorphosed mink frogs increased with higher water pH, suggesting that a decrease in pH in breeding wetlands could negatively affect the species' productivity (Feldman et al. 2023). Although ameliorating aggregate climate change impacts may not be possible, maintaining the quality of habitat for local populations and habitat connectivity among populations is likely to increase the resistance and resilience of mink frog populations to climate-related threats. The close association of the mink frog with beaver-modified wetlands (Popescu and Gibbs 2009) suggests that beaver management may also be an effective climate adaptation measure.

Several emerging diseases and parasites also pose a threat to mink frog populations. The chytrid fungus, *Batrachochytrium dendrobatidis* (*Bd*), first described in 1998 (Longcore et al. 1999), has become a disease of global concern, with a recent study finding *Bd*-infection in 72% of sampled countries and in 1062 of 1966 (54%) amphibian species tested (Monzon et al. 2020). In Maine, Bd was detected in mink frogs at a prevalence of over 17% in 2000 and 2001, with a quarter of infected mink frogs classified as heavily infected (Longcore et al. 2007). Additionally, 8.3% of mink frogs tested in Quebec between 1960-2001 also tested positive for Bd (Ouellet et al. 2005). First identified in the 1960s (Granoff et al. 1965), ranaviruses have been shown to cause mortality in at least 14 families and more than 70 individual species of amphibians (Miller et al. 2011). Mink frogs have been implicated in several morbidity and mortality events that were assessed from 1996-2001, including malformations, Dermocystidium-like fungus infections, and several mass die-off events from ranavirus (Green et al. 2002). The digenean flatworm parasite, *Halipegus eccentricus*, has also been found to infect 43% of male mink frogs in Maine (Bevier and Gorman Gelder 2018). Infection with the parasite can result in the complete occlusion of the eustachian tube, which was found to significantly reduce male responses to a conspecific advertisement call, therefore impacting a frog's ability to localize and respond to conspecific calls (Bevier and Gorman Gelder 2018).

Threat Level 1	Threat Level 2	Threat Level 3	Spatial Extent*	Severity*	Immediacy*	Trend	Certainty
1. Residential and Commercial	1.1 Housing & Urban Areas	(loss/degradation of habitat to development; fragmentation of forest/wetland habitat, conversion to residential/agricultural use)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
4. Transportation & Service Corridors	4.1 Roads & Railroads	4.1.1 Roads (roadkill)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
8. Invasive & Other Problematic Species	8.4 Pathogens	8.4.2 Viral pathogens (ranavirus)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
8. Invasive & Other Problematic Species	8.4 Pathogens	8.4.3 Fungal pathogens (chytrid)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.2 Industrial & Military Effluents	9.1.2 Runoff (acidification of wetlands)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.3 Agricultural & Forestry Effluents	9.3.1 Nutrient loads	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
11. Climate Change	11.1 Habitat Shifting & Alteration	(shifts in competition and/or predation leading to reduced abundance and population viability)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
11. Climate Change	11.3 Changes in Temperature Regimes	11.3.4 Increase in temperature fluctuations (causes problems in embryo development and dissolved oxygen due to changes in water temperature).	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

Table 1. Threats to mink frogs

Are there regulatory mechanisms that protect the species or its habitat in New York?

Yes: ✓ **No:** _____ **Unknown:** _____

If yes, describe mechanism and whether adequate to protect species/habitat:

New York State legislation (2006; ECL section 11-0107 sub 2) provides all native frogs, turtles, snakes, lizards and salamanders legal protection as game species, with very few species open to harvest. Native frogs that are open to harvest have a defined season and require a small game license for collection/take. The legislation also outlaws the sale of any native species of herpetofauna regardless of its origin.

Under Article 24 of the New York State Environmental Conservation Law, the Freshwater Wetlands Act provides protection for wetlands greater than 12.4 acres in size as well as smaller wetlands of unusual local importance. Starting on January 1, 2028, the Freshwater Wetlands Act will provide protection for wetlands greater than 7.4 acres in size. The Freshwater Wetlands Act also allows the Adirondack Park Agency to protect wetlands over one acre in size or any size wetland adjacent to open water within the Adirondack Park. The U.S. Army Corps of Engineers also protects wetlands, irrespective of size, under Section 404 of the Clean Water Act. Under Article 15 Title 5 of the New York State Environmental Conservation Law, the Protection of Waters program provides protection for the state's water resources, including rivers, streams, lakes, and ponds.

The Adirondack Park Agency (APA) Act requires that land uses such as draining, dredging, placing fill, structures, and subdivisions in or involving wetlands require an agency permit. A wetland is defined by the APA as "any land which is annually subject to periodic or continual inundation by water and commonly referred to as a bog, swamp or marsh and which are either (a) one acre in size, or (b) adjacent to a body of water, with which there is a free interchange of water, in which case there is no size limitation. Property that is flooded every spring by surface water backup or standing water may also be a wetland, as well as forested areas with high ground water".

Describe knowledge of management/conservation actions that are needed for recovery/conservation, or to eliminate, minimize, or compensate for the identified threats:

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for freshwater wetland amphibians, including the mink frog. Actions that have been accomplished, or where progress has been made, are indicated with a check. Conservation actions following IUCN taxonomy are categorized in the table that follows.

Easement acquisition:

____ Secure habitats critical to species survival by acquisition of conservation easements, or by other land protection mechanisms.

Habitat management:

____ Manage the variety of factors which might be limiting wetland habitat suitability for resident amphibian species, including management of exotic plants and animal species, management of adverse hydrological alterations, and management of anthropogenic inputs of sediments and toxicants.

Habitat research:

____ Develop standardized habitat survey protocols, and implement survey protocols at all known and potentially suitable sites, to document the character, quality and extent of occupied habitat.

Life history research:

____ Document life history parameters specific to New York populations of the species, including age and sex ratios, longevity, age at sexual maturity, survivorship of young, predator-prey relationships, and wetland/upland habitat requirements. **Modify regulation:**

__✓__ Modify Freshwater Wetlands Act, in order to protect wetlands smaller than 12.4 acres where they support species of conservation concern, and in order to expand the protected upland buffer beyond the 100-foot limit where necessary.

Other action:

____ Periodically evaluate status of the subject species to determine whether appropriate E/T/SC status listings are in effect.

Population monitoring:

____ Conduct periodic surveys of known sites of species occurrence, in order to detect population trends.

Statewide baseline survey:

____ Develop standardized population survey protocols, and implement protocols at all known and potentially suitable sites to document the extent of occupied habitat.

To elaborate on the aforementioned recommendations, there are several specific management and research objectives that would benefit the species. Habitat management is likely to be the most effective means of conserving the species. This includes managing for adverse hydrological alterations, anthropogenic inputs of sediments and toxicants, beaver populations, and protecting upland habitats to improve water quality and promote wetland connectivity and mink frog mobility. Habitat research should be conducted across the current range of mink frogs in New York, including peripheral habitat on the southern range edge. Additional research on the thermal biology, movement ecology, community assemblages at potential breeding sites, and population genetic structure of mink frogs in New York would provide foundational information about how the species might respond to the threat of climate change. Conducting repeated baseline surveys of known occupied and potentially occupied sites (particularly on the southern edge of the range) will be necessary to detect population trends, quantify occurrence and relative abundance, and document extinction and colonization rates.

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) - https://www.iucnredlist.org/resources/conservation-actions-classification-scheme

Action Category	Action	Description
A.1 Direct Habitat Management	A.1.0.0.0 Direct Habitat Management	Site/Area management
A.2 Direct Species Management	A.2.0.0.0 Direct Species Management	Species Management

Action Category	Action	Description
C.6 Design and Plan Conservation	C.6.0.0.0 Design and Plan Conservation	Site/Area and Resource/Habitat protection
C.6 Design and Plan Conservation	C.6.5.1.3 Develop a conservation, management, or restoration plan for protected private lands	Habitat and natural process restoration
C.7 Legislative and Regulatory Framework or Tools	C.7.1.2.0 Create, amend, or influence legislation	Legislation

Table 2. Recommended conservation actions for mink frogs.

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