

Listening to the Landscape:

What Amphibian Calls Reveal about Habitat Conditions



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- What does this landscape look like? 
- What management practices could you guess from these voices?

What's going on?



- Each species has something to say about the land- if we know who's calling, we know what kind of water, vegetation, and land management created that opportunity.



Ephemeral Wetland Specialists

“The Early Spring Singers”

These species rely on:

Shallow short lived wetlands that form from late winter through early spring rains. Places without fish, often in low depressions or flooded fields.

Wood Frog

(Lithobates sylvaticus)



Call: Soft, duck-like quacking

What it tells you: Intact (closed) canopy with undisturbed leaf litter and vernal pools a strong indicator of unfragmented forested wetlands.

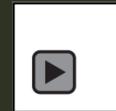


Ephemeral Wetland Specialists

“The Early Spring Singers”

Cajun Chorus Frog

(Pseudacris fouquettei-P. maculata)



Call: Trill, a thumb nail raking a plastic comb

What it tells you:
Landscape with seasonally flooded areas and herbaceous cover—Can reside in wet prairies, grasslands, forests, agriculture zones, and ditches.

These species rely on:

Shallow short lived wetlands that form from late winter through early spring rains. Places without fish, often in low depressions or flooded fields.



Ephemeral Wetland Specialists

“The Early Spring Singers”

Spring Peeper

(Pseudacris crucifer)



Call: Loud peep

What it tells you:

A sign of connected upland wetland habitat - they overwinter in nearby forests or under debris, accessible upland refugia close to breeding pools. Can tolerate moderate fragmentation.

These species rely on:

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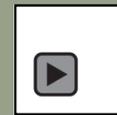
Semi-permanent Wetland & Pond Breeders

“The Mid-Season Choir”

These species rely on: Longer hydroperiods - water that persists through late summer, but still dries occasionally.

Crawfish Frog

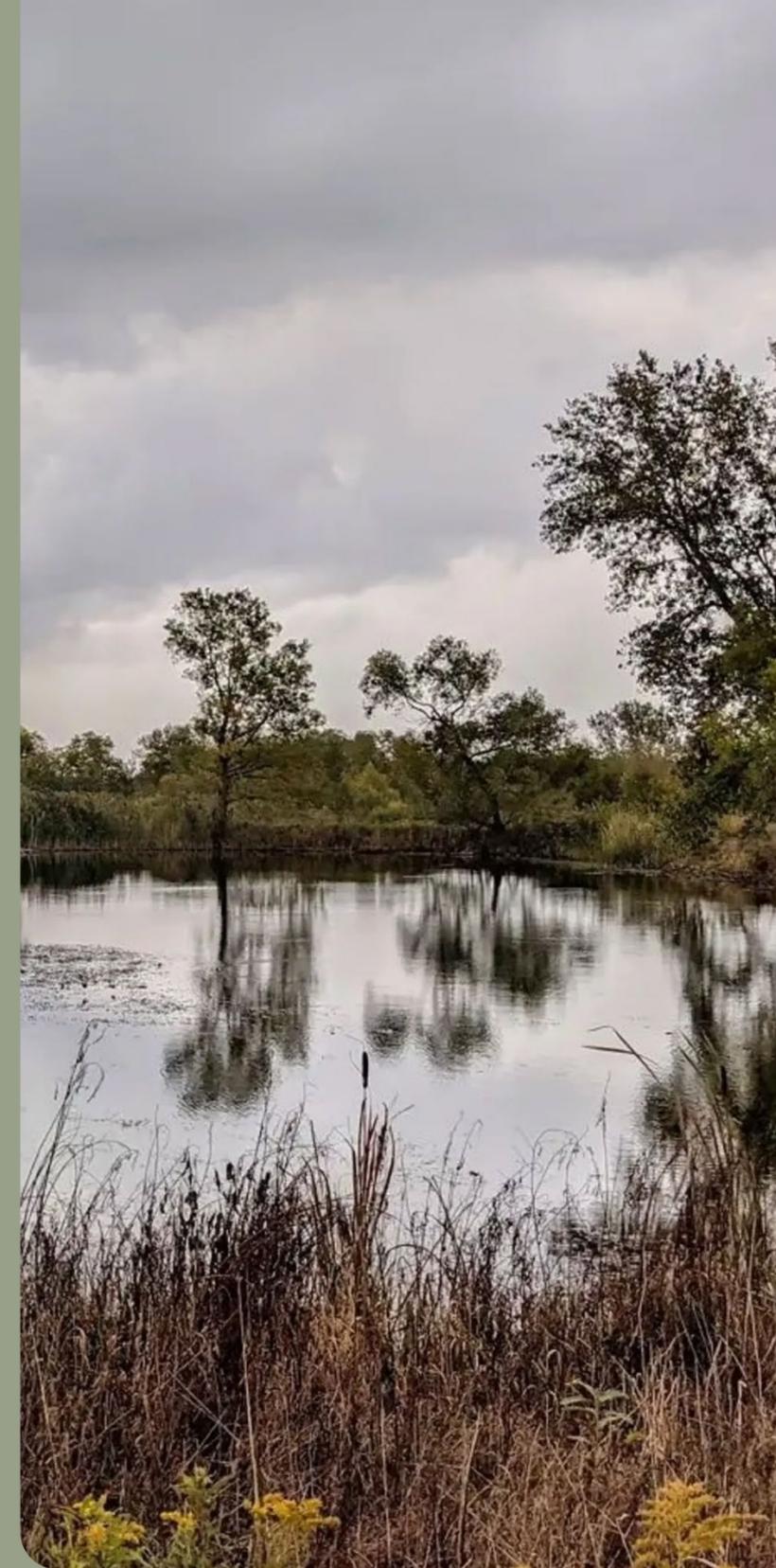
(*Lithobates areolatus ssp.*)



Call: Loud, deep snoring hog

What it tells you:

Grasslands with intact crayfish burrows - indicator of undisturbed prairie hydrology. A true **indicator of a functioning prairie-wetland mosaics.**



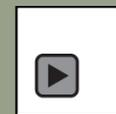
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Fowler's Toad

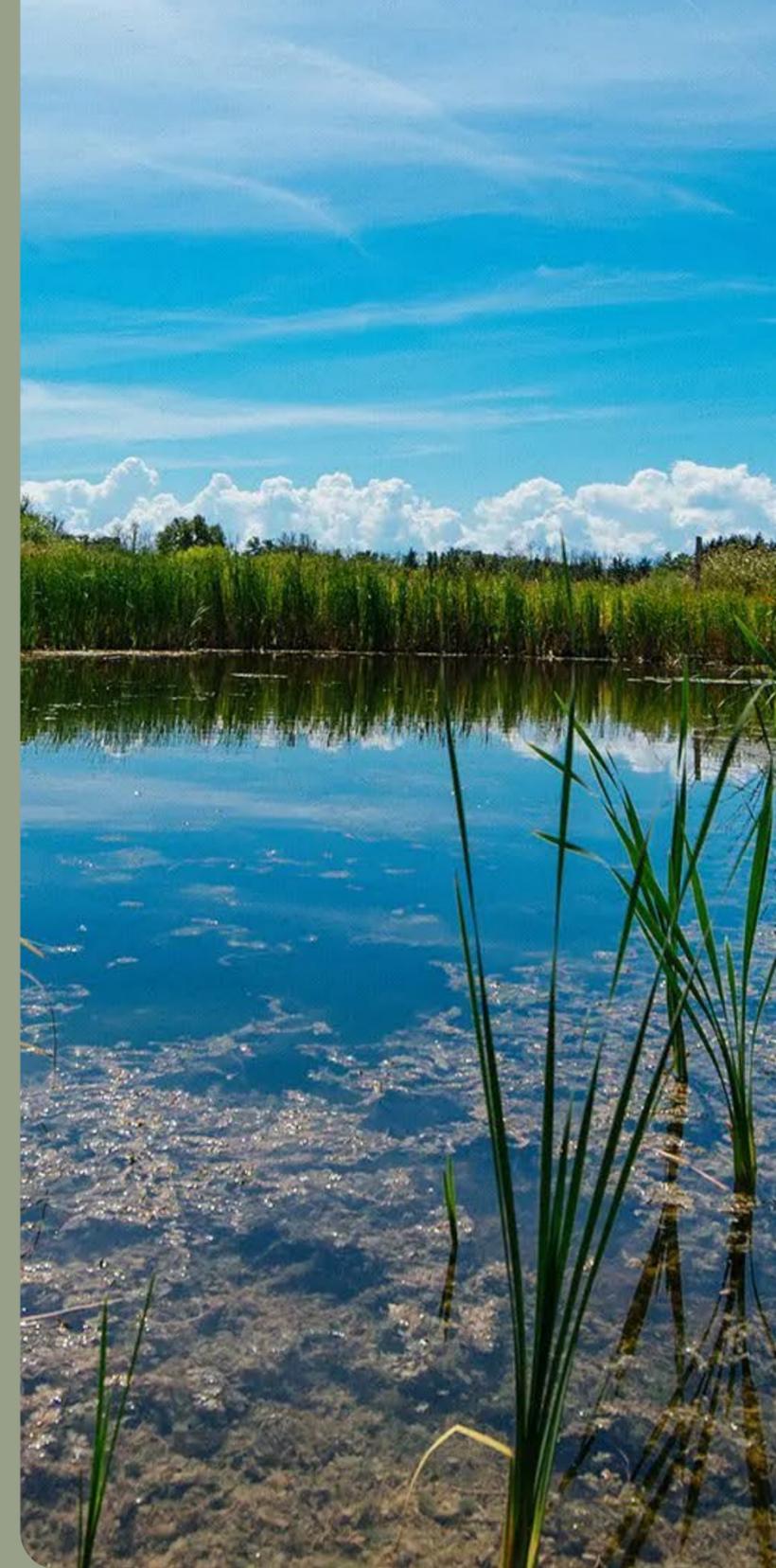
(Anaxyrus fowleri)



Call: A short whiny whaaat

What it tells you: Thrive in transitional zones between uplands and wetlands.

Adaptable and tolerant of disturbance to an extent. But they need sandy well drained soils for burrowing.



Semi-permanent Wetland & Pond Breeders

“The Mid-Season Choir”

These species rely on: Longer hydroperiods - water that persists through late spring or early summer, but still dries occasionally.

Blanchard's Cricket Frog

(*Acris blanchardi*)



Call: Cricket-like clicks

What it tells you: Prefer open habitats, sandy, gravelly, or muddy edges of water. Low patchy vegetation and short emergents in wetland edges. Tolerate moderately disturbed areas, but are **very sensitive to pollution.**

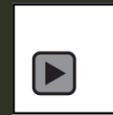


Upland or Tree Associated Species

“The Arboreal Neighbors”

These species rely on:

Adjacent forests, trees, or moist uplands vegetated wetlands, the surrounding terrestrial matrix is important.



Call: Pulsating trill

What it tells you: Presence of mature trees and vertical structure; adequate canopy cover and humidity. Need tree cavities and moist refuges. Prefer seasonal or semi permanent wetlands.

Grey Treefrog

(Hyla chrysoscelis-H. versicolor)



Upland or Tree Associated Species

“The Arboreal Neighbors”

These species rely on:

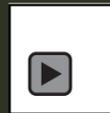
Adjacent forests, trees, or moist uplands vegetated wetlands, the surrounding terrestrial matrix is important.

Overall: They highlight the importance of upland-wetland connectivity. Great sign of functional buffers and woody edge management. Intensive tree removal or grazing right to the wetland edge can break that habitat link.

Green Treefrog

(Hyla cinerea)

Call: Duck-like quack



What it tells you:
Depend on emergent vegetation, moist corridors, functional connectivity between wetlands and nearby lowland habitat. Not a closed canopy.



Permanent Water Specialists

“The Summer Droners”

These species rely on: Year-round ponds, lakes, or slow moving creeks
areas where fish are present and water levels stay high

Bullfrog

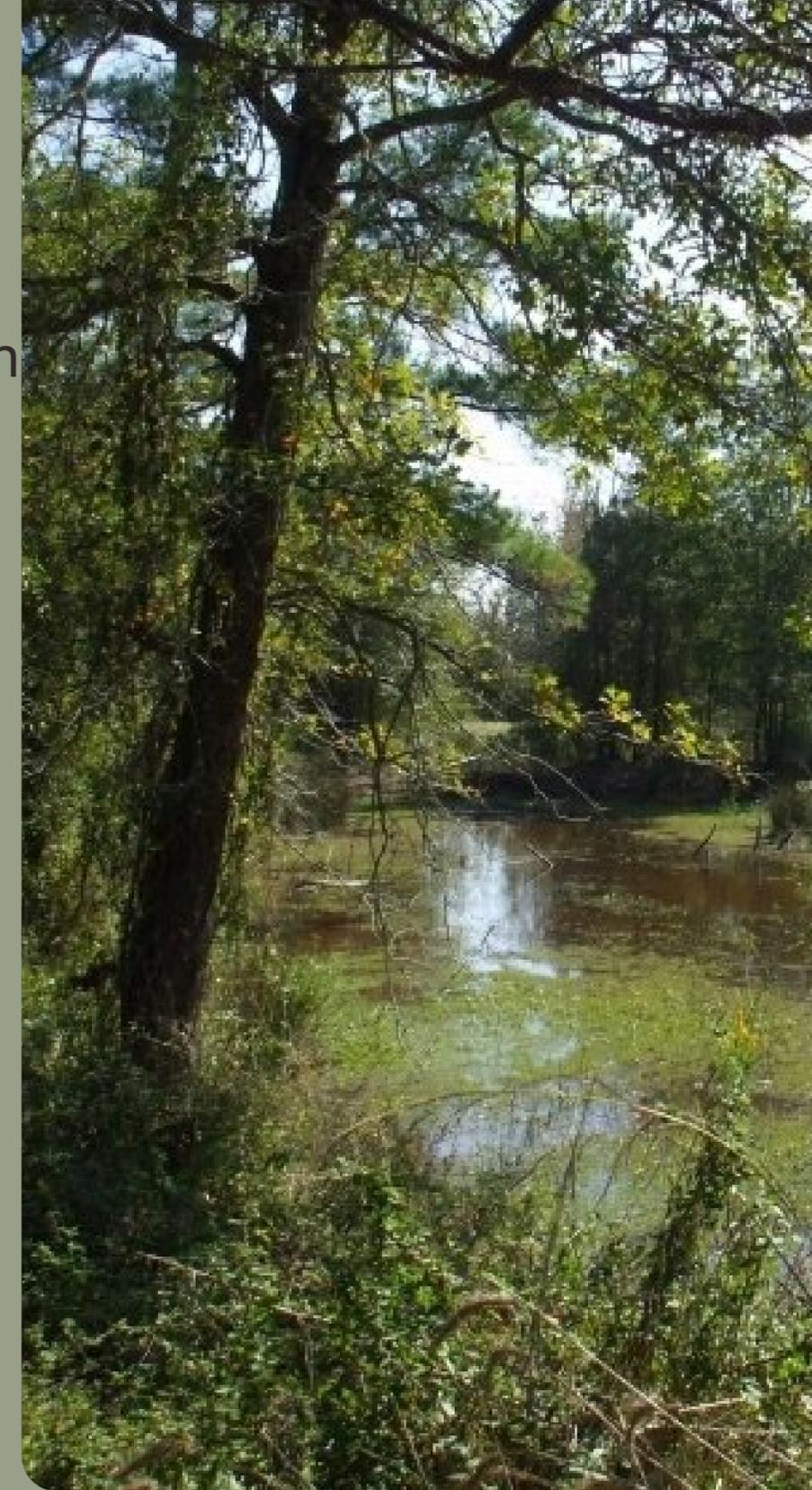
(Lithobates catesbeianus)



Call: Deep “jug-o-rum”

What it tells you:

A high number of bullfrogs often signals homogenized habitat - permanent, fish-filled and less dynamic. **Generalists** - can survive in lower oxygen, nutrient enriched, or moderately polluted waters.



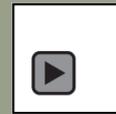
Permanent Water Specialists

“The Summer Droners”

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Pickerel Frog

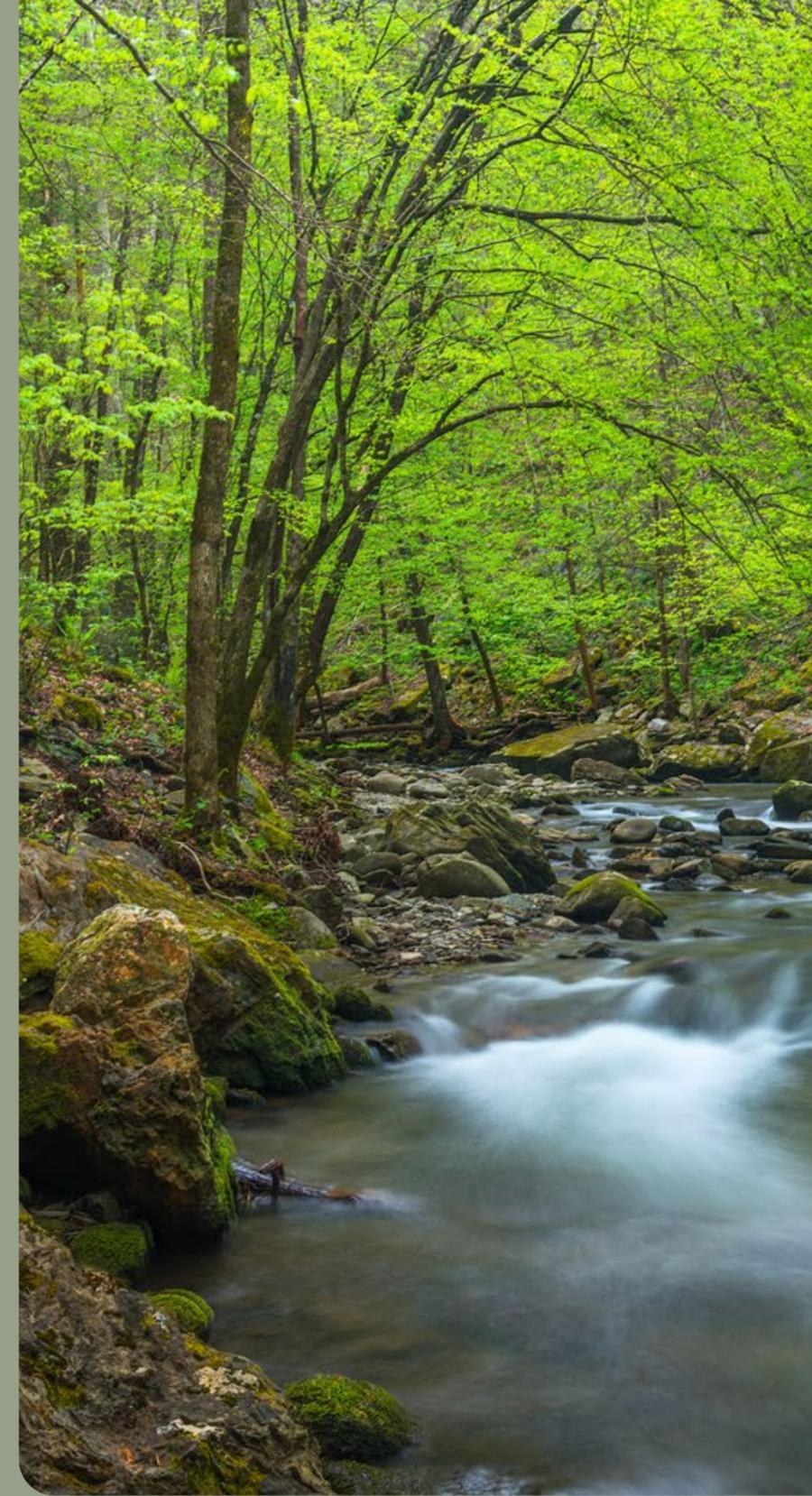
(Lithobates palustris)



Call: Low snore

What it tells you:

Clear, cool, spring-fed or shaded slow moving streams. Indicator of unfragmented forested watersheds with cold, clean water - one of the best biological markers of high quality streamside or seep habitats



Management Takeaways



Protect or Restore the Full Wetland Mosaic

- Encourage variety: When you have all those guilds present across the landscape, it means that hydrologic and vegetative diversity are intact
- When you only hear one or two voices, that's a sign of hydrologic simplification
- Avoid: “making everything a pond” ephemeral and semipermanent basins are just as important



Management Takeaways



Manage for Natural Disturbance Regimes

- Moderate Disturbance: (Like fire, grazing, or fluctuating water levels) Keeps shallow wetlands open and allows sunlight
- In grassland systems, rotational grazing and prescribed fire can help maintain amphibian edge habitat and benefit upland wildlife.
- Avoid: Longterm stagnation or woody encroachment in basins which historically dried out



Management Takeaways



Maintain Buffers and Connect Wetlands

- Amphibians will move between wetlands and uplands seasonally
- Buffers around wetlands (grass or forest) are vital for maintaining moisture and cover
- Minimize soil compaction, pesticide drift, and nutrient runoff near breeding grounds
- Landscape connectivity (100-500 meters) between wetlands helps amphibians persist. Think in clusters not single wetlands.

Bullfrogs

- Permanent waterbodies like ponds, reservoir, or lake that holds water year round. These systems have fish present which limits breeding opportunities for other species.
- Bullfrogs are tolerant generalists that can dominate in deep, stable, or even degraded wetlands with limited shallow edge habitat or vegetative diversity.

What it tells us:

- Their presence may suggest a simplified or altered aquatic system one that's less dynamic (no ephemeral or semi-permanent wetlands) and supports fewer amphibian species overall.

Quiz Time!

Listen closely..... 



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Listen closely..... 



Spring Peepers and Wood Frogs

What it tells us:

- Both ephemeral species so there is water that holds long enough for breeding but is dry by summer (fishless waters).
- The spring peeper points to a nearby wooded habitat or forest edge.
- While the wood frog indicates a forest landscapes with high quality vernal pools, strong landscape connectivity, and minimal disturbance.
- Together, their calls reflect a diverse, intact seasonal wetland landscape embedded in a connected forested landscape with natural hydrology and relatively low disturbance.

Crawfish Frogs, Spring Peepers, and Chorus Frogs

Quiz Time!

Listen closely..... 

What it tells us:

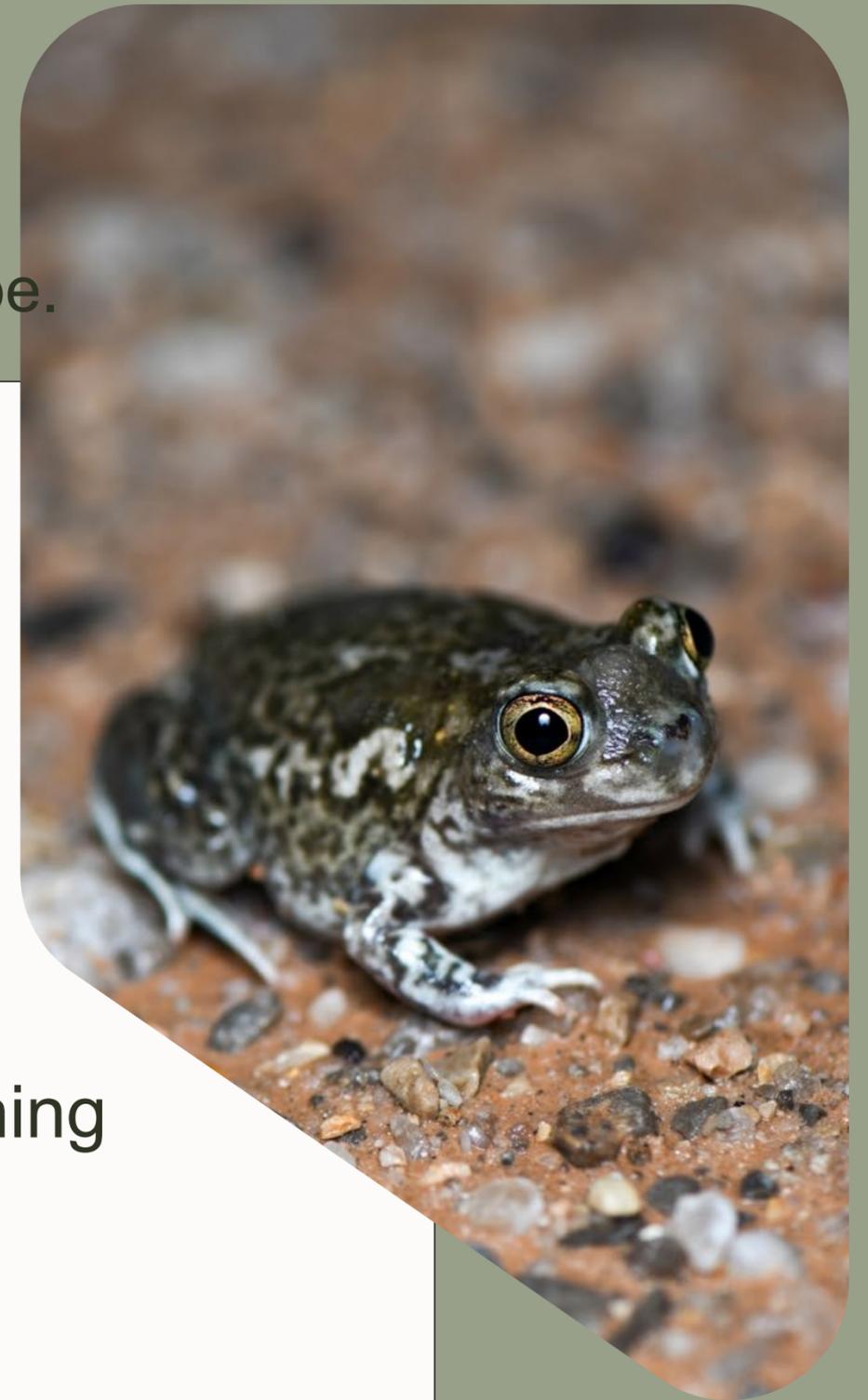
- Crawfish frog is a semi-permanent species while the chorus frog and peepers are ephemeral. Indicates a landscape with both ephemeral and semi-permanent wetlands, creating layered breeding opportunities.
- All of these species combined signal that you are in a functioning prairie wetland complex – intact soils, shallow basins with varied hydroperiods, low disturbance, and open upland connectivity.
- Crawfish frog signals intact upland wetland connectivity and healthy crayfish populations. Habitat has open prairie or grassland interspersed with shallow, vegetated wetlands.

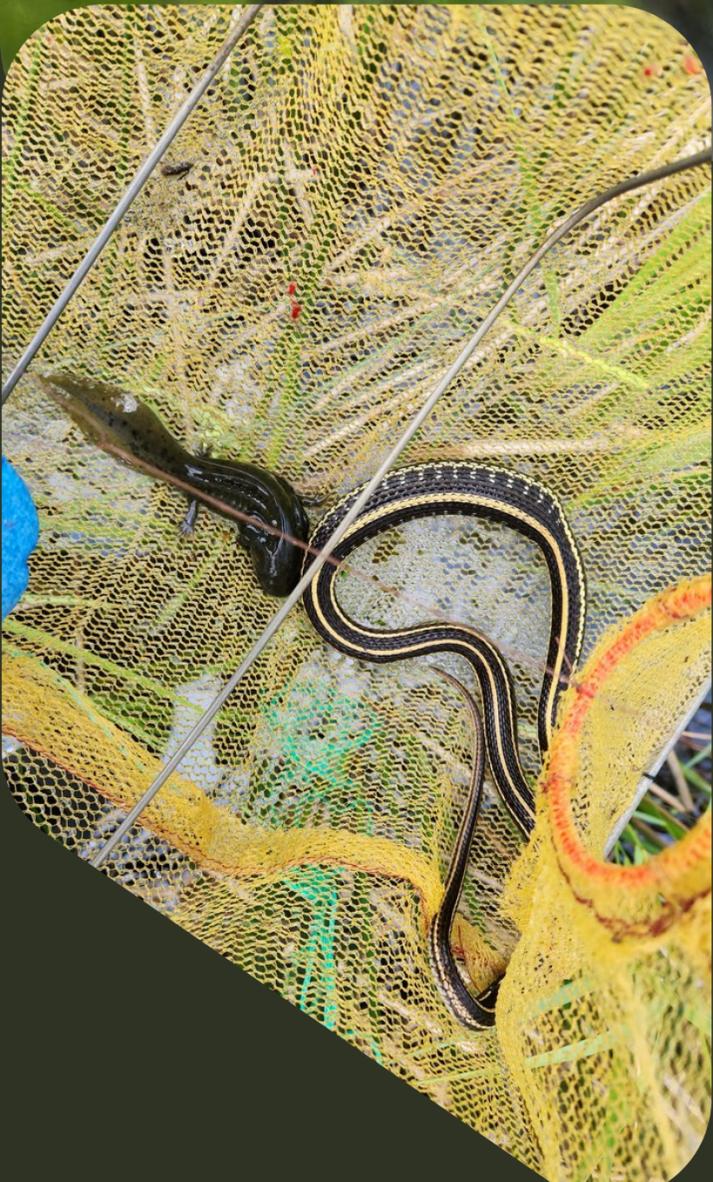


The Big Picture

Every croak of a frog is not merely background noise; it serves as feedback. It reflects how effectively we are managing the landscape.

- **Listen intentionally:** What species are calling? Which are missing?
- **Let the frogs guide your way:** They'll tell you if your hydrology is right, if your disturbance is working, and if connectivity is intact.
- Amphibians are often overlooked, but they reflect everything we care about: water, vegetation, land connectivity, and healthy amphibian communities indicate functional ecosystems.





Thank You

