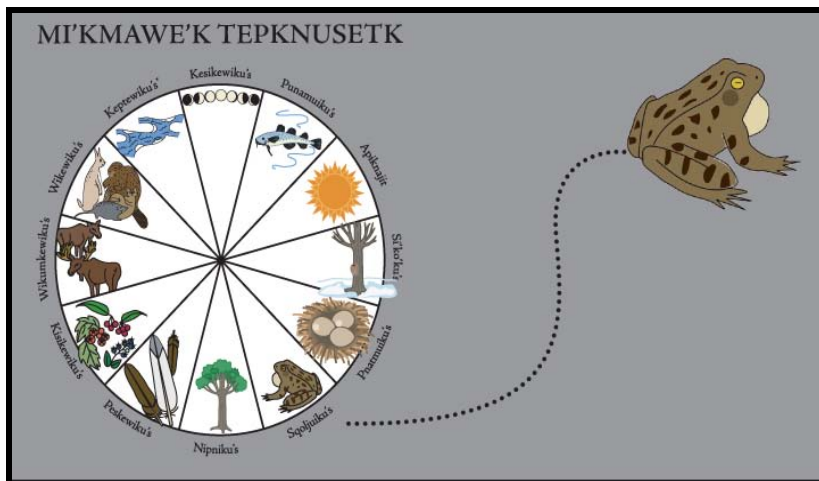


FROGS OF UNAMA'KI – community outreach re biodiversity and ecosystem health; pattern research

- 2006
- biodiversity awareness and ecosystem health consciousness using a “difference, pattern, variation” format for information presentation

In 2005 and with collaborative input from Mi'kmaw Elders, the Integrative Science research team created a Mi'kmaw calendar poster (see “Mi'kmaw Calendar” as separate entry in “Activities”). In the calendar, the moon cycle of Sqoljuiku's (“frog croaking time”) approximates to the month of May. After our calendar poster was printed, we continued working with the Elders to create another poster specifically about the seven species of frogs and toads that occur in Unama'ki – Cape Breton. Artist Basma Kavanagh painted originals for each species, including its adult, tadpole, and egg stages. Graphic designer Kristy Read worked these into a poster format, wherein “difference, variation, and pattern” among the species assembled is readily apparent to the eye. In addition to the visual for each species, textual details about the species' biology and natural history are provided. Again, we tried to present the information in a “difference, variation, and pattern” format that lends itself to quick and easy comparison among the different species. We gratefully acknowledge the assistance of Cape Breton University Biology Professor Dr. David McCorquodale and Lab Instructor Sonia Teichert who helped us ensure the accuracy of the information provided. In the pages that follow, a view of the whole poster is provided followed by enlargements from different parts of the poster for each of the seven species. The image below and the text boxes on the immediate next page are from the bottom banner of information on the poster wherein it, as a knowledge product, is explained.



This work was funded by a SSHRC research award to Cheryl Bartlett for a project entitled “Pattern recognition: enriching the ‘common ground’ of bringing Aboriginal and Western scientific knowledges together”.

Sqoljuiku's • Frog Croaking Time • “Moon Month” of May

Sqoljuiku's • Frog Croaking Time • "Moon Month" of May

Mi'kmaq people traditionally named the different moons (months) of the year based on significant natural patterns that they came to know within the ecosystems of their territory. **Sqoljuiku's** recognizes the pattern of "frog croaking time" in spring when male frogs sing to attract female frogs in reproductive rituals. Different species of frogs make different sounds and much variation is heard within the voices and songs filling the air. The croaking is always near locations where female frogs can lay their eggs . . . spots where Mother

Earth has fresh water such as pools, ditches, ponds, and small lakes or streams. Eggs metamorphose (change) into tadpoles over 1 to 3 weeks, and tadpoles of most species change into frogs within 2 to 3 months (with the exceptions above). Many other natural patterns occur during **Sqoljuiku's**: eels come out of the mud, blackflies emerge from the rivers, mayflowers and goldthread bloom, black ducklings hatch and begin to wander around, baby ravens peek out of nests, and marsh plants show new green growth.

ECOSYSTEM HEALTH CONSCIOUSNESS

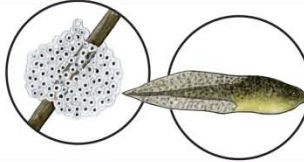
Difference, Pattern, Variation

TOQWA'TU'KI KJIJITAQNN • INTEGRATIVE SCIENCE



Frogs of Unama'ki

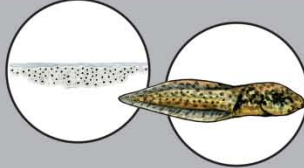
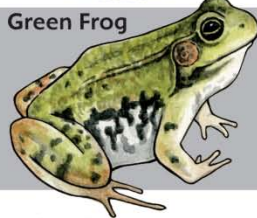
Mink Frog



Mink Frog • *Rana septentrionalis*
Mink Frog is green with many dark markings and is 4 – 7 cm long. He gets his common name from his musky odour; he smells like a mink. Mink Frog's song sounds like pieces of wood being rapped together ... TAP, TAP! While other frogs live on both land and water, Mink Frog spends most of his life in the water. He prefers permanent bodies of water like ponds and lakes. Female Mink Frog lays 2000 to 4000 eggs in a round jelly mass. This jelly mass is attached to an underwater plant stem or submerged twig. Mink tadpoles take one year to change into an adult, and are large in May when other tadpoles are small. Mink Frog eats dragonflies, damselflies, water beetles, aphids, minnows, leeches, snails, millipedes, and spiders.

MINK FROG

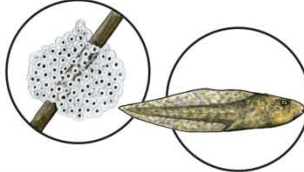
Green Frog



Green Frog • *Rana clamitans*
Green Frog is green with gray or brown markings on her back and legs, and has a pale belly marked with dark streaks. Male Green Frog is 6 – 10 cm long and has a bright yellow throat. Green Frog's song sounds like a loose bumpy string being plucked, or like a small pebble dropped into water ... UNK! Green Frog prefers to be close to water, and tends to live at the edge of rivers, ponds, lakes or streams. Female Green Frog lays 1000 to 4000 eggs in a loose jelly mass that floats on the surface of the water like a raft. Green Frog tadpoles take one year to change into an adult, and like Mink Frog, are large in May when other tadpoles are small. Green Frog eats beetles, flies, caterpillars, grasshoppers, spiders, snails, slugs, waterbugs, butterflies and moths, and sometimes other small frogs.

GREEN FROG

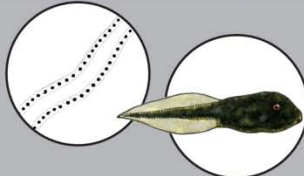
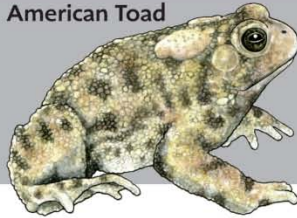
Pickereel Frog



Pickereel Frog • *Rana palustris*
Pickereel Frog is light brown with many dark blotches on his back and legs. He is 4 – 7 cm long. Pickereel Frog's song sounds like somebody sneezing, or like the sound of someone slowly pushing open a creaky door ... ARREP ARREP! Pickereel Frog lives on the shores of ponds or lakes, or on the banks of streams, often staying near permanent bodies of water at breeding time. However, he will also live in moist fields, bogs, or damp woods. Female Pickereel Frog lays her eggs in a round jelly mass attached to a plant or stick below the surface of the water. She can lay as many as 800 to 1800 eggs at a time. Pickereel Frog eats beetles, ants, spiders, caterpillars, sow bugs, mites, snails, true bugs, and many small water creatures.

PICKEREL FROG

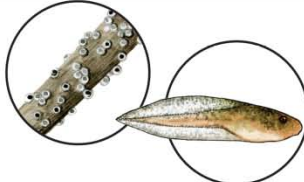
American Toad



Eastern American Toad • *Bufo americanus*
Toad is a plump creature with stubby toes and rough, warty skin. He is usually brownish, with darker brown or black markings. Toad has a pale belly with dark spots that become more distinct at night. Toad can grow to be 5 – 11 cm long. Toad lives in many different places, for example, in the woods, near a swamp or lake, in a field, or even in your backyard! His song sounds like a long, high trilling sound ... TRRRR! Female Toad prefers temporary pools for breeding. She lays 4000 to 8000 eggs at a time in two long strings near the bottom of the pool or puddle. Toad eats many kinds of insects like caterpillars, earwigs, sow bugs, as well as slugs, earthworms, and millipedes.

AMERICAN TOAD

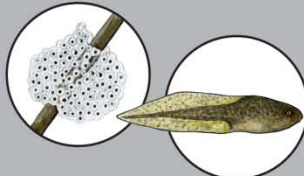
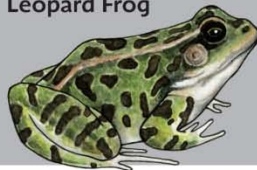
Spring Peeper



Northern Spring Peeper • *Pseudacris crucifer*
Spring Peeper is our smallest frog; he grows to 2 – 4 cm long. We know that spring has arrived when we hear Spring Peeper singing at night. His song sounds like a high PEEEP! Spring Peeper lives in the woods near ponds, marshes or swamps. He is our only tree frog and can change the colour of his skin to blend in with his surroundings. Female Spring Peeper lays 400 to 1500 eggs per year in a pond, on an underwater plant or twig. Spring Peeper, like other frogs, often sheds his skin and then eats it; however, most of the time he eats things like spiders, mites, sow bugs, leathoppers, ants, small worms, and caterpillars.

SPRING PEEPER

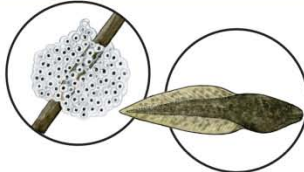
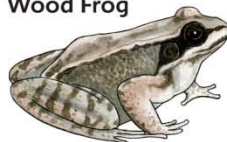
Leopard Frog



Northern Leopard Frog • *Rana pipiens*
Leopard Frog is a slim, green frog 5 – 9 cm long. He has many dark spots that are often ringed with bright green or bronze, and can make his colours darker to match his surroundings. Leopard Frog's song sounds like a low snoring sound followed by a throaty grunt ... I-RAAH RAH! Leopard Frog lives in old fields, meadows, grassy-edge woods, roads, and grassy roadside ditches. Female Leopard Frog lays 2000 to 6000 eggs in a flattened, rounded jelly mass. She prefers to lay her eggs in shallow water at the edge of lakes, ponds, or slow-moving streams. Leopard Frog eats beetles, spiders, snails, slugs, worms, and sometimes leeches.

LEOPARD FROG

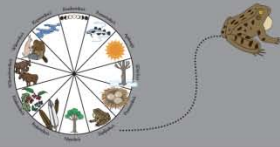
Wood Frog



Wood Frog • *Rana sylvatica*
Wood Frog is a small frog, 6 cm long, with a dark mask across his face. Wood Frog's song sounds like the soft quack of a duck ... GWAK! Wood Frog lives mostly on land in wooded places (hence his name). Wood Frog prefers temporary pools for breeding, for example, big puddles, ditches filled with water, or swampy areas. Female Wood Frog lays 500 to 1200 eggs in a round jelly clump. Wood Frog eats spiders, snails and slugs, earthworms, caterpillars, beetles, and other bugs.

WOOD FROG

MFKMAWEK TEPKNUSETK



Sqoljuiku's • Frog Croaking Time • "Moon Month" of May

Mi'kmaq people traditionally named the different moons (months) of the year based on significant natural patterns that they came to know within the ecosystems of their territory. Sqoljuiku's recognizes the pattern of "frog croaking time" in spring when male frogs sing to attract female frogs in reproductive rituals. Different species of frogs make different sounds and much variation is heard within the voices and songs filling the air. The croaking is always near locations where female frogs can lay their eggs ... spots where Mother

Earth has fresh water such as pools, ditches, ponds, and small lakes or streams. Eggs metamorphose (change) into tadpoles over 1 to 3 weeks, and tadpoles of most species change into frogs within 2 to 3 months (with the exceptions above). Many other natural patterns occur during Sqoljuiku's: eels come out of the mud, black flies emerge from the rivers, mayflowers and goldthread bloom, black ducklings hatch and begin to wander around, baby ravens peek out of nests, and marsh plants show new green growth.

CAPE BRETON UNIVERSITY

IBV
IWK Health Centre
Foundation

Centre of Excellence
CEPI
Canadian Environmental
Protection Institute

UNAMA'KI
INSTITUTE OF
NATURAL
RESOURCES

CIHR IRSC
Canadian Institutes of Health Research

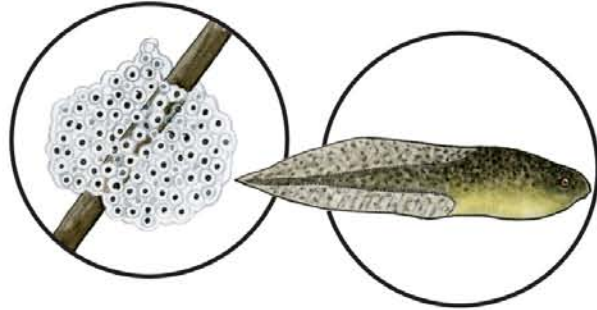
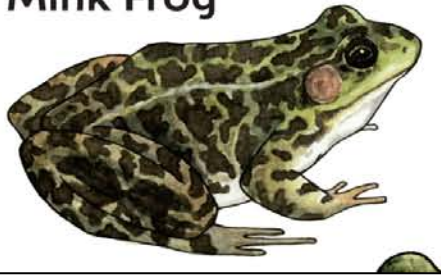
KECCA
Keweenaw Environmental
Conservation Centre

Canada Research
Chairs
Chaires de recherche
du Canada

Canada

© Toqwa'tu'ki Kjiijitaqnn • Integrative Science • Cape Breton University
P.O. Box 5300 • Sydney • Nova Scotia • B1N 4A2
mtl.capebretonu.ca • mtb@capebretonu.ca

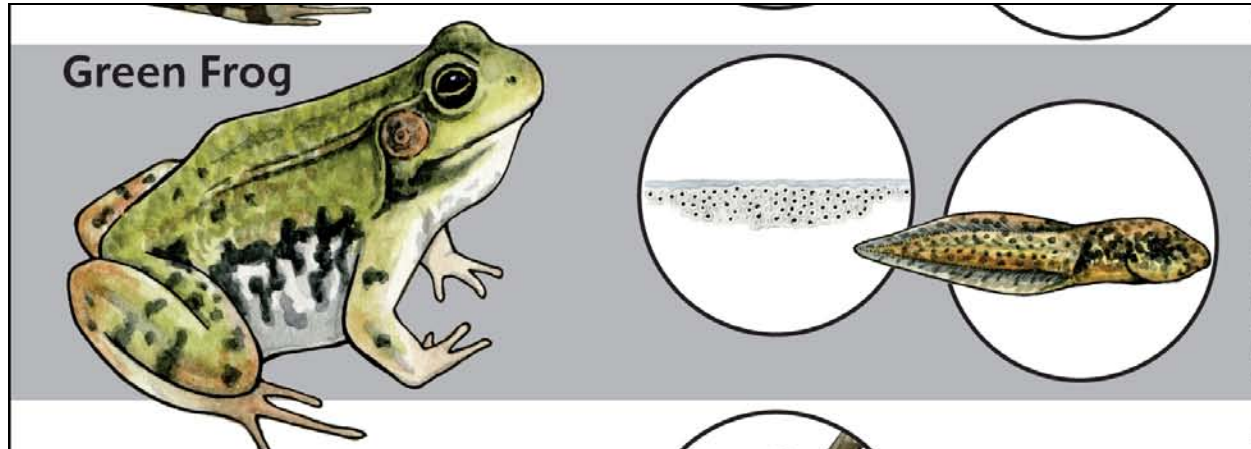
Mink Frog



Mink Frog • *Rana septentrionalis*

Mink Frog is green with many dark markings and is 4 – 7 cm long. He gets his common name from his musky odour; he smells like a mink. Mink Frog's song sounds like pieces of wood being tapped together ... TAP, TAP! While other frogs live on both land and water, Mink Frog spends most of his life in the water. He prefers permanent bodies of water like ponds and lakes. Female Mink Frog lays 2000 to 4000 eggs in a round jelly mass. This jelly mass is attached to an underwater plant stem or submerged twig. Mink tadpoles take one year to change into an adult, and are large in May when other tadpoles are small. Mink Frog eats dragonflies, damselflies, water beetles, aphids, minnows, leeches, snails, millipedes, and spiders.

MINK FROG

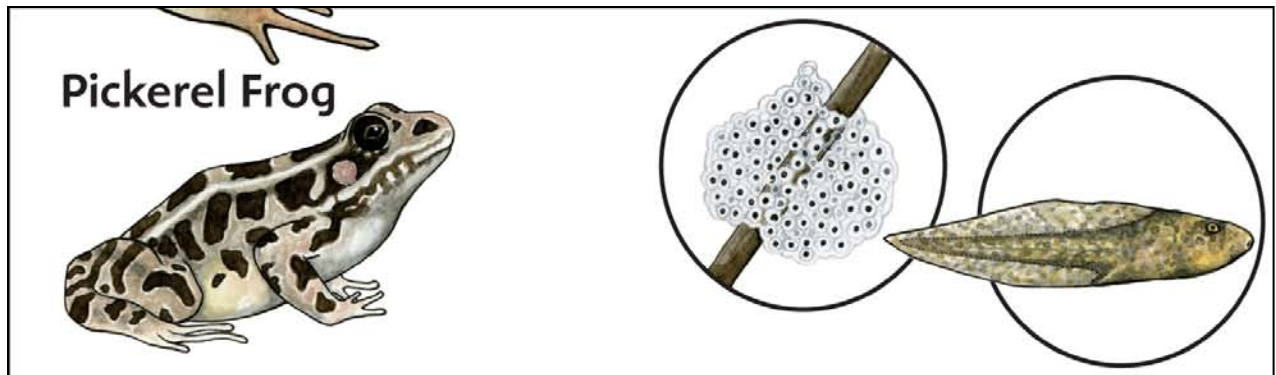


Green Frog

Green Frog + *Rana clamitans*

Green Frog is green with gray or brown markings on her back and legs, and has a pale belly marked with dark streaks. Male Green Frog is 6 – 10 cm long and has a bright yellow throat. Green Frog's song sounds like a loose banjo string being plucked, or like a small pebble dropped into water ... UNGK! Green Frog prefers to be close to water, and tends to live at the edge of rivers, ponds, lakes or streams. Female Green Frog lays 1000 to 4000 eggs in a loose jelly mass that floats on the surface of the water like a raft. Green Frog tadpoles take one year to change into an adult, and like Mink Frog, are large in May when other tadpoles are small. Green Frog eats beetles, flies, caterpillars, grasshoppers, spiders, snails, slugs, waterbugs, butterflies and moths, and sometimes other small frogs.

GREEN FROG



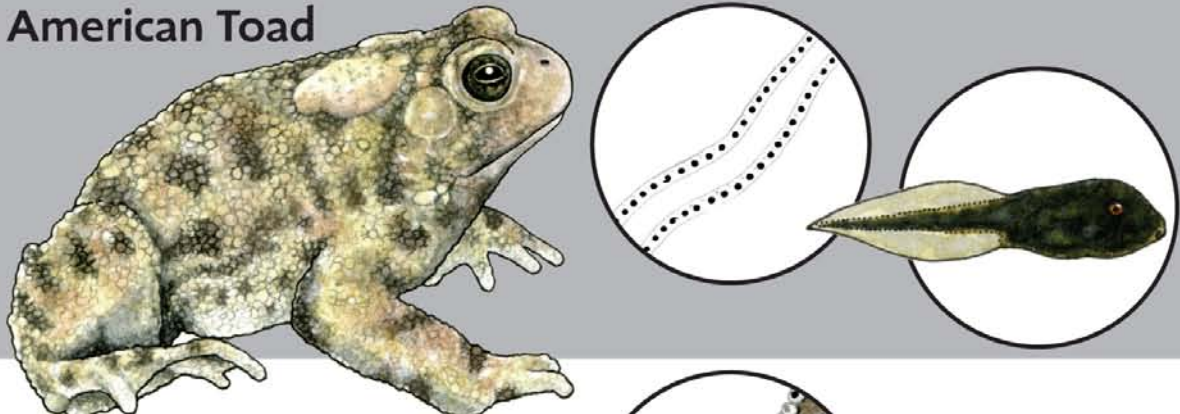
Pickerel Frog

Pickerel Frog + *Rana palustris*

Pickerel Frog is light brown with many dark blotches on his back and legs. He is 4 – 7 cm long. Pickerel Frog's song sounds like somebody snoring, or like the sound of someone slowly pushing open a creaky door ... ARREP ARREP! Pickerel Frog lives on the shores of ponds or lakes, or on the banks of streams, often staying near permanent bodies of water at breeding time. However, he will also live in moist fields, bogs, or damp woods. Female Pickerel Frog lays her eggs in a round jelly mass attached to a plant or stick below the surface of the water. She can lay as many as 800 to 1800 eggs at a time. Pickerel Frog eats beetles, ants, spiders, caterpillars, sow bugs, mites, snails, true bugs, and many small water creatures.

PICKEREL FROG

American Toad

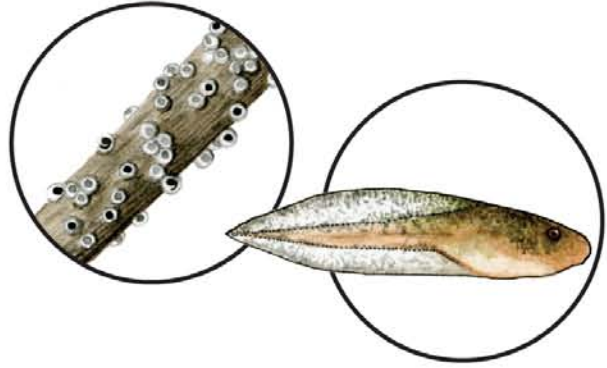
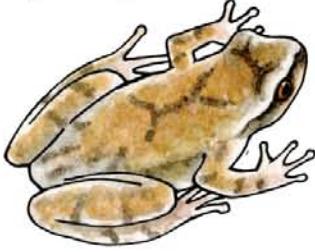


Eastern American Toad • *Bufo americanus*

Toad is a plump creature with stubby toes and rough, warty skin. He is usually brownish, with darker brown or black markings. Toad has a pale belly with dark spots that become more distinct at night. Toad can grow to be 5 – 11 cm long. Toad lives in many different places, for example, in the woods, near a swamp or lake, in a field, or even in your backyard! His song sounds like a long, high trilling sound ... TRRRR! Female Toad prefers temporary pools for breeding. She lays 4000 to 8000 eggs at a time in two long strings near the bottom of the pool or puddle. Toad eats many kinds of insects like caterpillars, earwigs, sow bugs, as well as slugs, earthworms, and millipedes.

AMERICAN TOAD

Spring Peeper

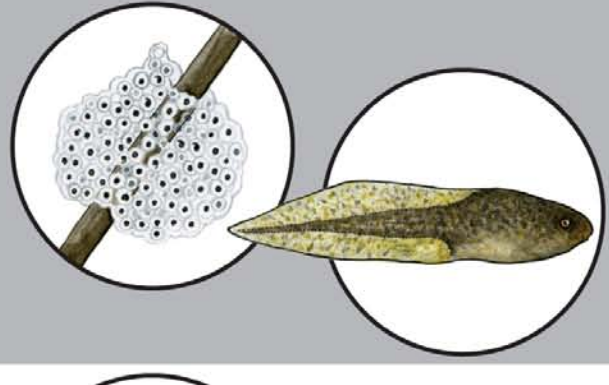
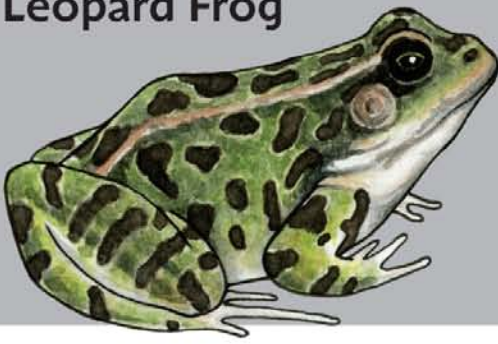


Northern Spring Peeper + *Pseudacris crucifer*

Spring Peeper is our smallest frog; he grows to 2 – 4 cm long. We know that spring has arrived when we hear Spring Peeper singing at night. His song sounds like a high PEEP! Spring Peeper lives in the woods near ponds, marshes or swamps. He is our only tree frog and can change the colour of his skin to blend in with his surroundings. Female Spring Peeper lays 400 to 1500 eggs per year in a pond, on an underwater plant or twig. Spring Peeper, like other frogs, often sheds his skin and then eats it; however, most of the time he eats things like spiders, mites, sow bugs, leafhoppers, ants, small worms, and caterpillars.

SPRING PEEPER

Leopard Frog

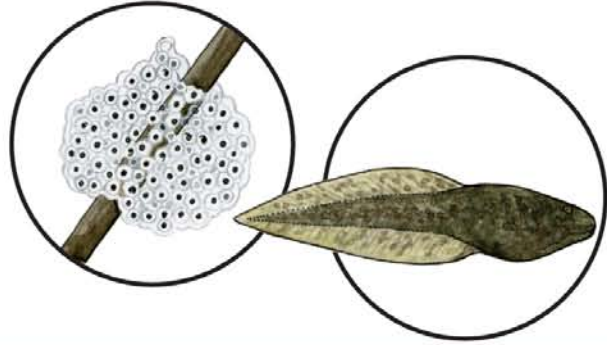
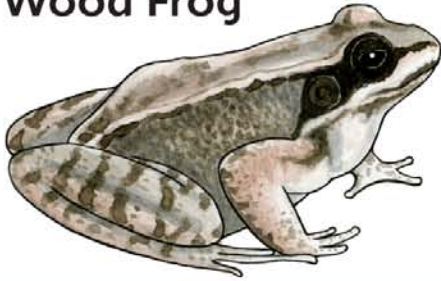


Northern Leopard Frog + *Rana pipiens*

Leopard Frog is a slim, green frog 5 – 9 cm long. He has many dark spots that are often ringed with bright green or bronze, and can make his colours darker to match his surroundings. Leopard Frog's song sounds like a low snoring sound followed by a throaty grunt ... IRAAH RAH! Leopard Frog lives in old fields, meadows, grassy-sedge woods, roads, and grassy roadside ditches. Female Leopard Frog lays 2000 to 6000 eggs in a flattened, rounded jelly mass. She prefers to lay her eggs in shallow water at the edge of lakes, ponds, or slow-moving streams. Leopard Frog eats beetles, spiders, snails, slugs, worms, and sometimes leeches.

LEOPARD FROG

Wood Frog



Wood Frog • *Rana sylvatica*

Wood Frog is a small frog, 6 cm long, with a dark mask across his face. Wood Frog's song sounds like the soft quack of a duck ... GWAK! Wood Frog lives mostly on land in wooded places (hence his name). Wood Frog prefers temporary pools for breeding, for example, big puddles, ditches filled with water, or swampy areas. Female Wood Frog lays 500 to 1200 eggs in a round jelly clump. Wood Frog eats spiders, snails and slugs, earthworms, caterpillars, beetles, and other bugs.

WOOD FROG