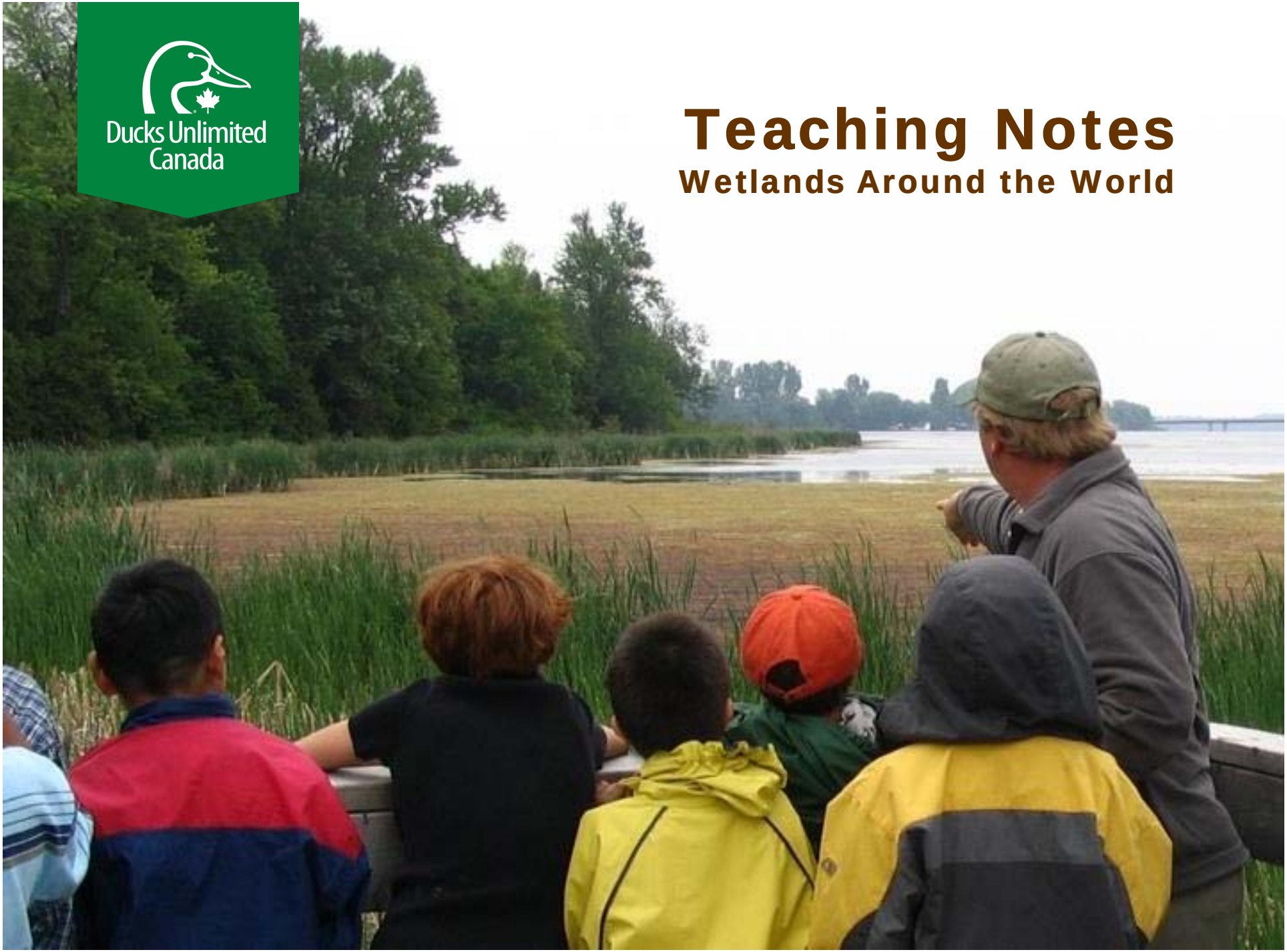
Ducks Unlimited Canada

Teaching Notes

Wetlands Around the World



Wetlands Around the World – Key to Teaching Notes

Information: Helpful information about the images that appear on the slides. For example, the name of the animal(s) and nature notes.

Teaching Ideas: ***Discussion ideas or questions you might want to ask your students.***

Reference: 🕮 Places to look for additional information or for additional study ideas.

Animal Model: ***M*** Denotes that a paper model of this animal is available as part of *Wetlands & the World.*

- ***Ask students to take turns reading the text on each slide to the class as you go through the show.***
- ***Orient the students by identifying the continents on the map.***

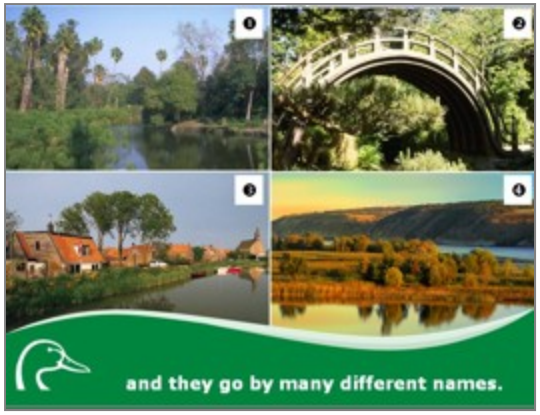
  (🕮 See page 10. Please note – continents are not strictly defined. Variations in the number & names of continents may arise with students from different parts of the world).
- ***Ask students to point out countries that they have come from, or where they have family, or that they have visited.***
- ***OPTION – Name the different animals that appear on the map (e.g. polar bear, jaguar, etc.)*** (🕮 See page 11 for list.).

Slide 1 of 2 – These two slides provide students with the opportunity to recognize wetland habitats they may have seen in other parts of the world.

- ***Ask you students if any of them have seen wetlands like these. Where?***

❶&❷ Cypress swamps (tropical); ❸Tropical wetland with palm trees

TEACHING NOTES



Slide 2 of 2 – ❶ Tropical wetland; ❷ wetland garden (Japan); ❸ riverside marsh in Europe; ❹ Coastal wetland (North America)

- ***Ask the students if they know the names of some kinds of wetlands (make sure you have shared the definition of a wetland from Lesson 1).***

  The names for some kinds of wetlands appear in **Lesson 1**.

- ***The students may also have names in their first language that they want to share with the class. Compile a class list on the board.***

Marsh

Marshes usually include shallow open water (less than 2.0 metres deep). Different plant communities thrive in different areas and include cattails, rushes and sedges as well as water lilies and other floating and underwater plants. Marshes are very productive. Marsh plants convert sunlight and nutrients into living matter more efficiently that most other ecosystems (forests, farmlands, etc.) and so support a remarkable variety of fish and wildlife.

Swamp

Swamps are dominated by trees and shrubs and are important to many plants and animals. White-tailed deer use dense, conifer swamps for winter cover and wood ducks, mergansers (a duck), owls and other birds often nest in the hollow trees of swamps.

Bog

Bogs are common in the boreal forest. They are acidic and include sphagnum moss and plants like sundew and skunk cabbage – both of the latter are “insect eaters” that attract & digest insects for extra nutrients.

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❶ **Greenwing Teal (hen) –** This small dabbling duck arrives in Canada in early spring. It nests on dry land near wetlands. Its nest is hidden in grassy clumps or under low shrubs.

❷ **Flamingos -** This tall, wading bird feeds on shrimp and other small wetland creatures. Its bill is designed to allow it to suction in water while its head is upside-down. There are many kinds of flamingos throughout the tropics, although some kinds are disappearing due to the loss of their local wetlands.

📖 Visit "Ducks Detectives" at education.ducks.ca for more information about the Greenwing Teal

Wood duck (hen and young)

The wood duck male is the most colourful duck found in Canada. They nest in tree cavities.

Ducks Unlimited Canada and other groups help improve the nesting habitat for these birds by installing nesting boxes in areas where there are few trees available for nesting.

📖 For more information about wood ducks or DUC's conservation efforts, including our nest box program, please visit our website.

❶ **Ibis** (left) uses its curved bill to dig in the mud for food (small crustaceans, etc); revered in ancient Egypt and seen in hieroglyphs. The **Marabou Stork** (right) (Africa) – one of the world's largest flying birds; eats most kinds of animals – living or dead; nests in large colonies near marshes.

❷ **Egret** (found in much of the world) – protected by international law; in the past its population was decreased greatly as people hunted it for its beautiful feathers (mostly for ladies' hats); symbol of the National Audubon Society, another important conservation organization.

❶ **Alligators** and other reptiles, such as turtles, snakes, crocodiles, caiman, etc. are found in many southern wetlands. Alligators are predators who play an important role in the food chain.

❷ ***M*** **Painted turtles** are common in marshes, swamps, and around lakes, rivers and streams in southern Canada. They get their name from their bright markings.

❸ **Raccoons** are highly adaptable but their most natural setting is a wetland. The raccoon is a night hunter, an expert climber and a strong swimmer. It is a major predator of duck nests in many areas.

❶ ***M*** **Dragonfly on cattail.** Dragonflies lay their eggs on underwater plant stems. They hatch into *nymphs* which live in the water and eventually change (through *metamorphosis*) into adults. Dragonfly nymphs and adults are both predators and carnivores.

❷ ***M*** **Fish.** Found in wetlands around the world. Over one billion people around the world depend on fish as their main source of protein.

❸ ***M*** **Frog.** Frogs are amphibians. Frogs lay their eggs in water. These hatch into tadpoles which eventually begin to grow legs, absorb their tail and change into their adult form.

Zebra drinking at a water hole.

Water holes, like this one, are an important watering place for African wildlife.

- ***Ask your students what other animals they might see at a water hole like this.*** Their answers might include birds (flamingos, storks), turtles, alligators, snakes, elephants, warthogs, antelope, lions, giraffes, etc.

You may need to explain the meaning of the word **migrate** to your students.

For information about migration visit the Ducks Unlimited Canada's website. This includes "Duck Detectives" an activity that provides links for students to learn about migration and a free, downloadable teachers' guide.

- ***Ask your students if they can name some other animals that migrate.***
  Many species migrate including insects (e.g. monarch butterflies), large mammals (caribou, antelope, etc.), whales, etc.

Wetlands are amongst the most biologically diverse ecosystems in the world.

Soils Many of the world's wetlands are rich in plant life and have a cycle of growth and decay which creates a nutrient-rich environment. Deposits of soils from the water carried to the wetland by rivers and floods adds to this.

Plants have many special adaptations; some wetland plants include giant water lilies, carnivorous plants (sundew, Venus flytrap), trees with special roots and trunks, etc.

Wetlands filter water.

Natural systems help to clean water. As water flows through a wetland or seeps into the ground below it is filtered and cleansed. Many wetland plants have the ability to absorb certain metals and other pollutants through their roots, removing them from the water.

Lesson 4: Wetlands Really Clean Up! In our 2013 Habitats and Communities guide explores this topic.

TEACHING NOTES

Elephants at watering hole.

Watering holes like this are extremely important in places that experience regular dry seasons or droughts. But, they are important everywhere. In Canada we also experience dry years and droughts and wetlands provide reserves of water for wildlife and for our drinking water supplies.

Mangrove swamp bordering a river.

Wetlands, such as these mangrove swamps (Mumbai, India,) provide an important "buffer zone" for rivers and shorelines. The extensive root systems of many wetland plants prevent soil from being washed away by waves or tides.

Many important food plants originated in wetlands.

❶ Planting rice. Rice originated in the wetlands of southeast Asia. It is now the staple diet of over three billion people worldwide.

❷ Mechanical harvesting of cranberries. Originally cranberries were found in bogs (a kind of wetland) in the northern hemisphere. They were used locally as a food for many centuries but are now popular for juice, dried snacks and other uses.

- ***Your students may want to share their own experiences with these foods. For example, do they have a favourite recipe for using rice or can they name some different dishes?*** (e.g. paella, rice pudding, sticky rice, sushi)

❶ **World Wetlands Day** (February 2nd) is recognized by groups around the world. On World Wetlands Day in Hong Kong, this student acts the role of fisherman in a play to show the audience how important wetlands are to their everyday lives.

❷ **Fishing huts** along a river's edge in Italy.

❸ **Paella** (a traditional Spanish seafood & rice dish). Shrimp, clams, many other crustaceans and over two-thirds of marine fish species rely on coastal wetlands at some stage in their lifecycle.

Ducks Unlimited Canada is a non-profit organization and since 1938 it has worked to protect, conserve, restore and enhance wetland habitats for the benefit of North America's waterfowl, wildlife and people. As part of these efforts we recognize the urgent need to educate and engage more people in their protection, helping them to understand the essential role that these rich and diverse ecosystems play in our own health and Canada's future.

Research is an important part of understanding the health of wetland and the life within it. It helps to identify problems and solutions.

❶ Volunteers assist researchers in surveying the numbers and kinds of fish in a river. This can tell a lot about the river's health and comparing over time can show whether it is improving or deteriorating.

❷ A DUC researcher checks a duck egg to assess the growth of the duckling inside the egg.

TEACHING NOTES

Students Taking Action!

Students are planting wetland plants but there are many things your students can do to help.

Taking Action! provides some project and action ideas. More ideas can be found on our website at education.ducks.ca. If you undertake a project don't forget to submit it to be recognized as one of Ducks Unlimited Canada's **Wetland Heroes.**

To learn how you can help visit us

on-line at education.ducks.ca

or call 1-800-665-3825 (665-DUCK)

Antarctica (not shown)

Ducks Unlimited Canada

Notes: Continents

Ducks Unlimited Canada

Notes: Wildlife