

6/10/02 SPACE INVADERS DRAFT

In today's world, many plants and animals have been brought into natural environments where they were never found before. Sometimes this has been done on purpose, other times by accident. Often, these introduced plants and animals have no predators or other natural controls on the growth. Their numbers can grow so much that they can take over a habitat leaving little space for the native plants and animals to grow and thrive. Once this happens, the introduced plant or animal is called an *invasive species*.

Invasive species are a serious threat to the natural habitats found in National Parks and elsewhere. As a Jr. Ranger, you can help prevent the spread of invasive species by being on the lookout for them and helping to control their growth. Here is some information about invasive species that are found at Gateway National Recreation Area. Chances are, you can observe them in your own neighborhood too.

CASE STUDY: MUTE SWAN (Nancy check new swan graphics)

Because of their beauty, these majestic creatures were introduced into this country from Europe in the early 1900's (1800's?). The graceful waterbirds were eagerly sought to adorn the estates of wealthy landowners in New York and Connecticut. The captive birds prospered in their new homes of man-made ponds, sprawling lawns, and gardens. They produced many young, who soon enough, left the estates and began nesting in natural ponds and wetlands nearby. Now Mute Swans nest in the wild all the way from New England to Virginia, and even in the Great Lakes region, and their numbers have grown to over 12000! Mute swans, by their increasing numbers and behaviors, upset the delicate balance of life in the wetland ponds and marshes they inhabit.

The Disturbing Facts:

- Adult swans eat about 8 pounds each of wetland plants a day - WOW!! In their hungry search for food, they can cause tremendous damage to wetlands, not only eating the plants that the native wetland creatures need for food and shelter, but also uprooting others that are in the way of the choice plants they seek.
- After feeding so much, its only natural that many droppings follow. So many droppings that the natural process of decomposition in the wetland

cannot keep pace. As a result, the droppings pollute the water and create an unhealthy environment for all the life in it.

- Finally, Mute Swans are excellent parents. They are very territorial and fiercely defend their nests, chicks (cygnets) and feeding areas. In doing so, they force the native ducks, geese and other water birds out of their wetland homes. We all know what that means, because if animals don't have their homes, they cannot survive.

CASE STUDY: GIANT REED GRASS (try phragmusk.tif here)

Giant Reed Grass or *Phragmites australis* is a plant that grows at all of the sites of Gateway National Recreation Area, in fact it grows all over New York, and even throughout the world! It likes to have "its feet wet" so it is especially found on the edge of both fresh and saltwater wetlands. When a natural wetland becomes polluted or disturbed by fire, bulldozer, or other means, the native plants that would normally live there get displaced. This creates a new home for Phragmites, its fluffy seeds land in the newly disturbed area and quickly sprout. From that point on, the Giant Reed grows uncontrollably, spreading by very strong underground roots called rhizomes and by the thousands of seeds that each stalk produces. It leaves little space, sunlight, and nutrients to share with other wetland plants. There are a few different varieties of Phragmites, but the one that grows in these *disturbed* habitats, came originally from Europe. Because of its uncontrolled growth, Phragmites is considered an *invasive species*.

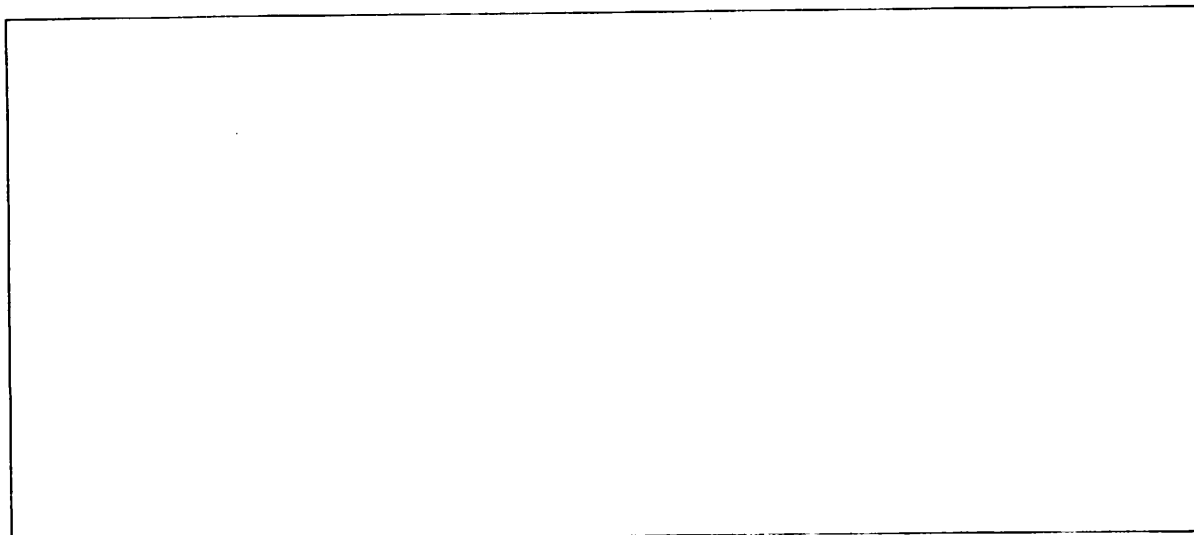
Look for Phragmites on your visit to any of the Gateway sites. Because of its powerful reproduction, it usually grows in very dense stands, sometimes referred to as the "Phragmites Jungle." Some people say Phragmites looks like tall bamboo or wheat.

One good place to see Phragmites is at the Jamaica Bay Wildlife Refuge. If you walk to bench #2 on the West Pond Trail, you can observe how Phragmites is invading wetlands on both sides of the trail, in the West Pond and in the saltmarsh.

INSIDE AND OUTSIDE THE PHRAGMITES JUNGLE

In the space below sketch a wetland shoreline where you see Phragmites invading. Try to include both the Phragmites stand and the shoreline area or marsh right next to it, where Phragmites isn't growing. Include in your

sketch, any animals (including birds and insects) and other plants you observe.



Record how many different kinds of plants and animals you observe inside the Phragmites stand vs. outside the Phragmites stand.

	Inside the Phragmites	Outside the Phragmites
Plants		
Animals		

MIGHTY, TINY AND TOO MANY! (put new phraghead.tif here)

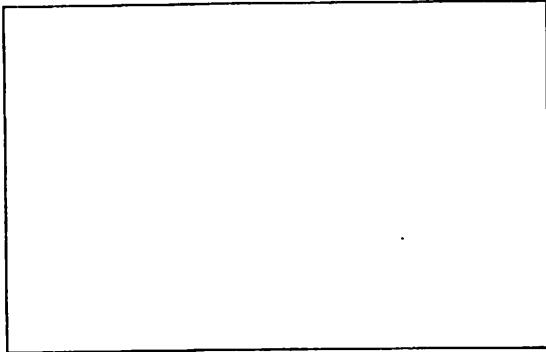
To get an idea of how much Phragmites can reproduce, let's see how many seeds there are in just one seed head. First, obtain permission from a park ranger to collect one seed head from one stalk of Phragmites. Now, you could count every seed in one seed head, but that would take almost forever! Instead try to estimate how many you think there are. Here is one way you can do this: Divide the seed head into 4 quarters, count the number of seeds in one quarter, then multiply by 4.

#of seeds in $\frac{1}{4}$ of a seed head _____ total number of seeds _____

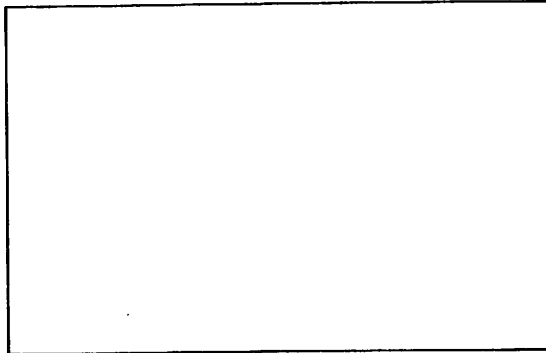
Can you recommend any other method to estimate the total number of seeds in one seed head? If so, write it in the space below.

AT HOME NATURALLY

There are two wetland plants in particular that Phragmites is known to displace. One, Salt Marsh Cordgrass (*Spartina*) grows in saltwater wetlands. The other, Cattail (*Typha*), grows in fresh water wetlands. Using an internet search or plant field guides from your library, look up these two native wetland plants. Draw a sketch of each of them below.



Saltmarsh Cordgrass



Cattail

(omit this line!)

(if necessary to omit to shorten booklet o.k. -I guess!)

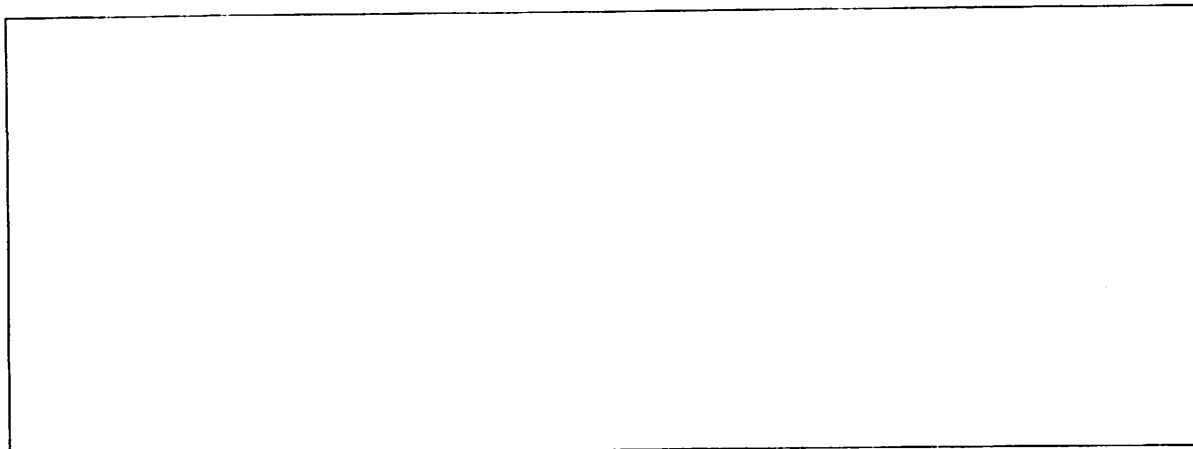
CASE STUDY: ORIENTAL BITTERSWEET (need graphic)

This is a very strong woody vine with rounded leaves and beautiful orange and yellow fruits. It's native home is Asia but it is grown in the United States as a garden plant. After feeding on the fruits, Birds disperse the seeds, which end up sprouting in many natural areas. Bittersweet grows very quickly and spreads not only by its fruits but also by very strong, rapidly growing underground roots. Because it is a vine, it wraps itself around trees and shrubs to reach the sunlight. This prevents the native plants from receiving the sun they need for life. Sometimes bittersweet can actually strangle the plants it uses for support, its twining stems twist around the support plant's branches constricting the flow of it's vital fluids.

VINE DETECTIVE (prefer different activity)

If you are a keen observer, you will see Oriental bittersweet and other vines on a visit to any site at Gateway National Recreation Area. In the space below sketch a vine and the plant it is wrapping itself around. Be careful not to touch the plants, as one of them could be POISON IVY, which often grows like a vine. Try to accurately capture the shape of the vine leaves,

their arrangement on the stem and any flowers or fruits. Show your sketch to a park ranger who may be able to help you identify it.

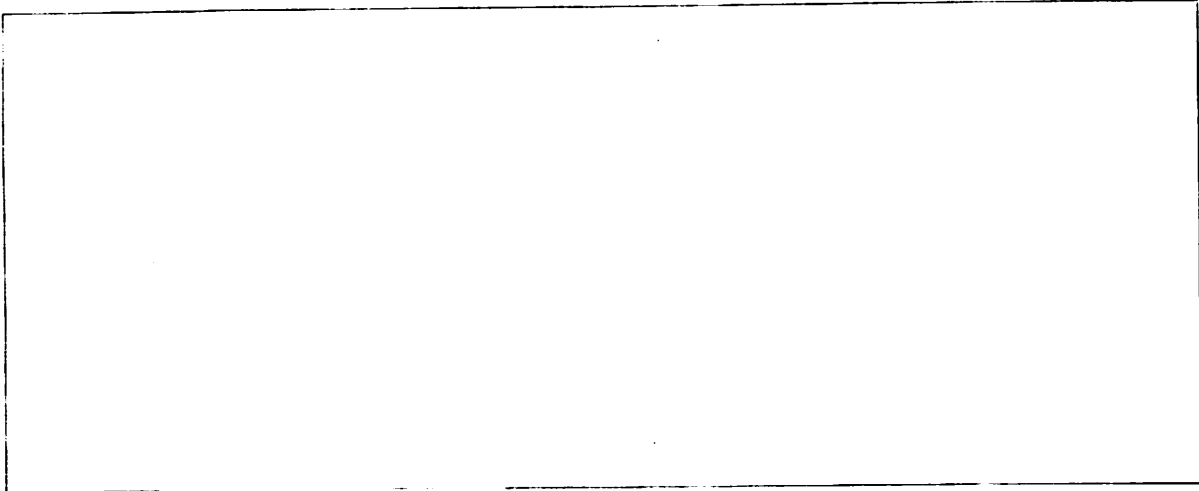


CASE STUDY: PETS NO MORE

Now here are some critters most of us are familiar with. Many of us have had pet birds, turtles, snakes, bunnies, kittens and puppies. We take care of them, feed them, and provide them with a home. Sometimes, however, pet owners are not able to care for their pet, they release it into a natural environment so that the animal can “take care of itself” or, sometimes the pet “runs away” from home and finds itself in nature. Unfortunately, this can have devastating effects not only on the environment, but also on the animal that’s been released. Pets set free normally can not care for themselves, they can get hit by automobiles, suffer from harsh weather and die of starvation. Pets can carry diseases not normally found in the wild. Just like invasive species, the diseases themselves can spread to wild animals and have negative impacts on the local environment. Sometimes, released pets begin to breed in the wild and effect the local animals by their behaviors. For a striking example of this, read about “Wild Cats” in the SPECIES AT RISK section of this Jr. Ranger booklet.

INVADERS IN THE MARSH

Here is a diagram of a marine wetland much like the ones that surround Jamaica Bay. Circle any space invaders you find below that could cause harm to the native wetland plants and animals.



SPACE INVADERS LOG

Here are the major space invaders ~~that are found at~~ Gateway National Recreation Area. You can help us keep track of these invasive species by letting us know if you observe any of them. If you see any of them on your visit to the park, please record the date(s) observed, the park site(s) it was found in, and its exact location at the site.

The Invader	Date(s) Observed	Park Site(s)	Exact Location(s)
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Phragmites

House Cat

Mute Swan

Oriental Bittersweet Vine

Japanese Honeysuckle Vine

European Land Snail

House Sparrow

European Starling

OTHER WAYS YOU CAN HELP:

- When visiting a pond or other wetland, never feed the Mute Swans or other waterfowl, this encourages them to stay in an area where they might not otherwise.
- Never set a pet or non-native animal free into a natural environment. These animals include pet turtles, ferrets, parrots, rabbits, snakes, insects, and even dogs and cats! If you have a pet that you are unable to keep, contact your local humane society to help you find a new home for it.
- If you are permitted to bring pets to a natural area, always keep them on a leash.
- Help protect wetlands and other natural habitats from being disturbed.
- Never pollute.
- Volunteer at your local National Park or nature center to help remove invasive plants.
- Choose to plant only non-invasive plants for your yard and garden. *dad's* plantings. Many plants that people like to grow, like tomatoes, marigolds and ~~mums~~, are not native, but seldom grow out of control. These are o.k. to plant as are many other non-native plants as long as they are not invasive. Better yet, plant native species if you can. Native plants rarely grow out of control and they are important food and shelter for the native wildlife. In addition, because they are adapted to the local climate and soil, native plants usually require less care to grow than non-native species. A park ranger can give you a list of native plants to grow.
- Share this information with others that may not know about invasive species.